Social Impact Assessment Survey of the China West-East Gas Pipeline Project

Overall Report

United Nations Development Programme
China Country Office

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FOREWORD

This Social Impact Assessment survey of the West to East Gas Pipeline is a joint product of the United Nations Development Programme and the China International Center for Economic and Technology Exchange (CICETE). The work involved six national consulting institutions and NGOs, provincial and county statistics bureaus, the State Statistics Bureau, and a team of national and international consultants.

Our decision to undertake this survey was based on our past experience with poverty alleviation projects in poor rural communities in China, particularly in western provinces. More recently we have promoted Public-Private Partnerships by introducing the UN Global Compact to national and multi-national enterprises in China, which includes the advocacy for corporate social responsibility.

Our point of view is that sustainable development depends fundamentally on the commitment, energy, and creativity of the people themselves. Households are--and should be treated as—actors in the process of social and economic change. As government continues to supply public goods and begins to rely more on commercial partners for large-scale infrastructure investments, the benefits of these investments can be increased and the negative impacts reduced by actively involving the people and communities, who are going to be directly or indirectly affected by such large-scale projects.

For all these reasons, we agreed in March 2002 with Shell China Exploration and Production Co. LTD to form a partnership to survey the social impact of the West to East Natural Gas Pipeline.

The objectives of the SIA survey were multiple. We wanted, first of all, to expand the scope beyond the conventional approach of Social Impact Assessments in other countries. We wanted this survey to be based as much as possible on statistically valid sampling of the thoughts, opinions and recommendations of households and stakeholders in communities along the pipeline route. Secondly, because the pipeline will increase tax revenues, we wanted also to learn about peoples' views on the development prospects and priorities of their communities. Finally, with this information and statistical analyses we wanted to make recommendations on how to minimize any adverse social effects and ensure that resources can be allocated in such a way that benefits will accrue to local communities along the path of the pipeline. As part of a broader commitment to sustainable development, specifically in Western provinces in China, we believe that community-oriented investments are crucially important.

The current report documents the methodologies and survey process, findings, recommendations and lessons learned. The main finding of the report is that there is a solid opportunity to develop a preventive strategy based on consultations with local communities, residents and local government officials. We found that local residents were supportive but worried. Peoples' support needs to be maintained. The way to do that is to supply full and prompt information, to engage and to listen to peoples' views, and to take action with them to increase benefits in order to avoid the potential negative impacts of the project, before they occur.

We hope that the findings and methods of the report will be widely shared, discussed and critiqued. Large infrastructure projects are a feature of the Western Development initiative. Social impact assessments are still relatively new in China and not yet required by law. We hope that this SIA survey will prompt interest and will serve as a model for similar SIAs in the context of other projects to be built in the future in China.

Kerstin Leitner
Resident Representative
United Nations Development Programme in China

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This SIA was made possible by the cooperation and dedication of numerous institutions and individuals. The United Nations Development Programme would like to thank, first of all, the lead substantive institutions - the China Statistical Information Consulting Center (CSICC) of The State Statistics Bureau, The Institute of Macroeconomics of the State Development and Planning Commission (SDPC), The Rural Development Institute of China Academy of Social Sciences (CASS), the Rural Development College of China Agricultural University (CAU), The School of Policy and Public Management of Tsinghua University and the international NGO (Leadership for Environment and Development, LEAD.)

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Finally and most important, UNDP wishes to acknowledge and to thank the households and stakeholders in villages and towns along more than 3,500 km of the pipeline route who gave generously their time, their thoughts, and their opinions about the pipeline and about the prospects for development of their communities.

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ACRONYMS

CASS	---	Chinese Academy of Social Sciences
CICETE	---	China International Centre for Economic and Technical Exchanges
CORD	---	College of Rural Development, China Agricultural University
CSICC	---	Central Statistical Information Consulting Center
ERM	---	Environmental Resources Management
IED	---	Institute of Environment and Development
LEAD	---	Leadership for Environment and Development
LOGIT	---	Logistical Regression Analysis
LSMS	---	Living Standards Measurement Survey
RCD	---	Rural Consumed Durable
RCE	---	Rural Consumption Expenditure
RHPCY	---	Rural Household Per Capita Income Yuan
SDPC	---	State Development Planning Commission
SIA	---	Social Impact Assessment
SIAS	---	Social Impact Assessment Survey
SSB	---	State Statistics Bureau
UCD	---	Urban Consumed Durable
UCE	---	Urban Consumption Expenditure
UHPCY	---	Urban Household Per Capita Income Yuan
UN	---	United Nations
UNDP	---	United Nations Development Programme
UNICEF	---	United Nations Children's Fund

Executive Summary

This report is a summary and synthesis of a social impact assessment (SIA) survey of the China West-East gas pipeline project undertaken by the United Nations Development Programme (UNDP) China Office and the China International Centre for Economic and Technical Exchanges (CICETE) in partnership with Shell China between 16 April and 30 July 2002. The SIA survey assessed the likely social and economic impacts on households and communities along a total of 3,583 kilometers of the pipeline route in seven provinces: Xinjiang, Gansu, Ningxia, Shaanxi, Shanxi, Henan, and Anhui. The reports on each province are attached as section reports to this overall report.

The SIA survey is unconventional in two ways. First, it focused much more than most SIAs on understanding and analyzing what people in communities along the pipeline route really think about the potential impacts of the project. Second, much of the highly detailed information needed for a more conventional SIA – a precise and detailed footprint of the project—was still not available at the time of the survey in five of the seven provinces. This in itself is an important finding. It is also a potential problem because in some places along the route, construction has already begun, or is about to begin.

UNDP's view is that to understand the likely social impacts of a large project it is important to know what households and stakeholders in communities to be affected think about it. In particular, it is important to know prior to construction:

- what households and stakeholders along the route know and do not know about the project – and the sources of the information;
- how important they think it will be;
- what benefits they hope it might bring;
- what negative effects concern them;
- what suggestions they have about increasing positive benefits;
- what suggestions they have for reducing negative effects; and
- how they view development prospects and priorities for their communities.

This information was gathered in a large-scale, representative sample of communities, households, and stakeholders along the pipeline route. The sample was designed by China Statistical Information Consulting Centre (CSICC), State Statistics Bureau (SSB). Four survey questionnaires were developed: one each for rural and urban households, one for stakeholder groups, and one on community characteristics. The questionnaires were pre-tested in four provinces. They were shortened and revised for the full survey conducted from May 20 to June 3 by teams from six research institutes. More than 10,750 people along the route were interviewed. Data was back-checked, entered and analyzed. Seven individual provincial reports based on a common outline were written and revised.

The samples interviewed were the representative of minority populations along the pipeline route. But there are some limitations and likely bias in the data. Women were under-represented. The precise households to be directly affected could not be identified. There were measurement and estimation problems with household income and employment distribution by sectors. Urban

samples were drawn only from households with urban registration. Clustering and coding of responses to open questions involved judgement calls. There was an upward bias in responses to the community characteristics questionnaire. In most cases, however, the direction of the bias in the information is known and was taken into account in the analysis.

Even allowing for some upward bias, there seems to be a strong benefit of the doubt view of the pipeline overall, a reservoir of good will, -- a presumption among households and communities that the project is important and good for China. A striking finding of the survey is that 80% to 90% of households in most communities said that their community is a better place to live now than in the past. The improvements have occurred within the adult life span of most of the respondents. They look favorably on big development projects perhaps mainly for this reason. But there are worries too -- and they were expressed candidly.

The level of information about the project was still low at the time of the survey. Notification and posting of plans for compensation were lagging as well. People were concerned about loss of land, lower crop yields, the environment, and damage to local roads. Some (37%) were concerned about inadequate compensation.

Positive views of the project were based on hopes that there would be benefits for the local economy, employment opportunities, and access to natural gas as a fuel. Some hoped for sufficient compensation to get a new start.

The mitigation measures proposed are mainly based on the costs and benefits of prevention and early mitigation. Providing information early about the pipeline cost little or no more than providing it late. Early posting of a compensation plan costs no more than posting it late. The firms doing the construction work can play an important role in prevention and early mitigation at very little additional cost. The inherent flexibility of the compensation process leaves room to bring it closer to international standards. But there is a need for monitoring and follow-up with the households to be affected.

The principal benefit of prevention and early mitigation is protection of the good will found in the survey. This reservoir of good will is a very valuable social resource. It should be protected and enhanced by anticipation and preventive resolution of social impact problems, and by provision of benefits, to the extent possible, to people along the route. The good will should not be squandered by mismanagement or inattention.

Laying the pipeline—digging the trench and securing rights of way—presents an opportunity, at the same time, to lay fiber optic cables along the pipeline route. A broadband fiber cable, stretching from Xinjiang to Shanghai, would ordinarily cost hundreds of millions of dollars, but government could realize significant savings by combining the installation of such fiber cables with the natural gas pipeline. In that way, rural communities, provided with off-take feeder fiber cables, could benefit from high-speed communications just as they hope to benefit from off-takes of the natural gas.

Most likely benefits of the pipeline will be indirect. The pipeline project will increase tax revenues. There may also be some revenue sharing, and we recommend establishment of a

development fund. This SIA survey identified in each province along the pipeline route, the development improvements most valued by the people themselves. If the pipeline project can help meet these priorities, then it will satisfy the hopes and expectations which the survey found.

Future SIAs of large infrastructure projects in China would benefit from more detailed information on the footprint of the project, and more time to create commitment to the process, ownership of the findings.

1. Introduction

This Report is a summary and synthesis of a social impact assessment (SIA) survey of the China West-East gas pipeline project. The SIA survey was undertaken by the United Nations Development Programme (UNDP) China Office, and the China International Centre for Economic and Technical Exchanges (CICETE) for Shell China, between 16 April and 30 July 2002.

The SIA survey assessed the likely social and economic impacts on households and communities along a total of 3,583 kilometers of the pipeline route in seven provinces: Xinjiang, Gansu, Ningxia, Shaanxi, Shanxi, Henan, and Anhui. (An earlier and separate analysis by different authors and institutes covers the prospective impacts in Jiangsu and Shanghai.[1])

The length of the pipeline in each province is shown in the table below. The length includes vertical adjustment for altitude changes. A map of the pipeline route is on page 2, below.

Table 1: Length of the Pipeline

Province	Length (km)
Xinjiang	952.5
Gansu	990.0
Ningxia	268.5
Shaanxi	356.7
Shanxi	345.9
Henan	319.5
Anhui	353.6

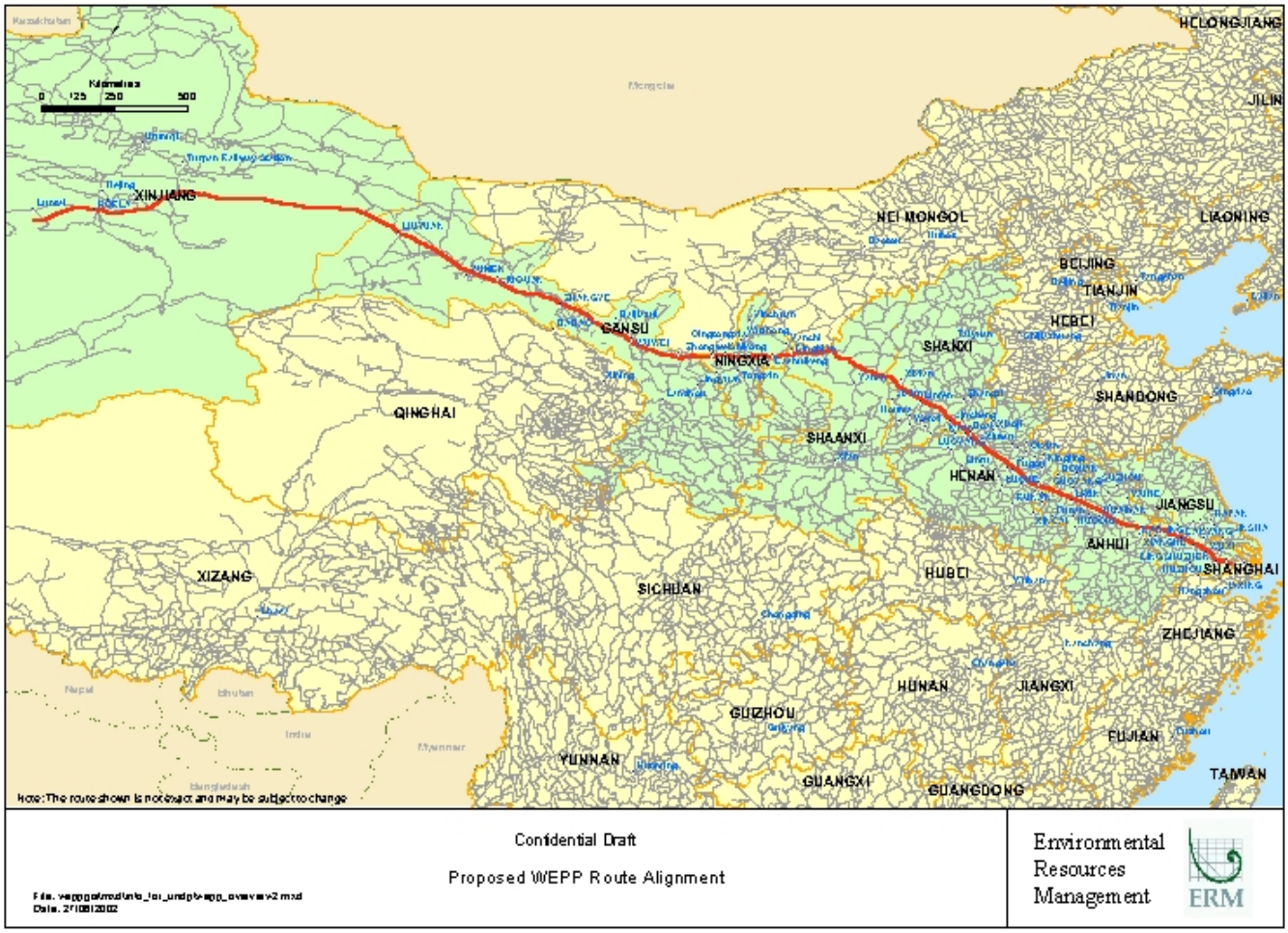
Source: Shell China

This report begins with a detailed summary of the methodology of the SIA survey, assesses the reliability of the findings, summarizes the most common impacts perceived by households and stakeholders along the pipeline route, suggests mitigation measures, and concludes with lessons learned.

The report draws examples, findings, recommendations, and lessons learned from the seven provincial reports. The provincial reports are attached as section reports following this overall report. They are attached in geographical order, west to east, beginning with Xinjiang. Each provincial report begins with an executive summary.

[1] Environmental Resource Management (ERM) and Shanghai Bringger Consulting Ltd. (December 2001) *"Survey Report for Jiangsu-Shanghai."*

MAP: West-East Gas Pipeline Route



2. Methodology

This SIA survey of the West-East pipeline is unconventional in two ways. First, it focused much more than most SIAs on understanding and analyzing what people in communities along the pipeline route really think about the potential impacts of the project. More than 10,750 people along the route were interviewed.

Second, much of the highly detailed information needed for a more conventional SIA – a precise and detailed footprint of the project—was still not available at the time of the survey in five of the seven provinces. This in itself is an important finding. It is also a potential problem because in some places along the route, construction has already begun, or is about to begin.

This section describes, step by step, the methodology of the SIA survey.

2.1 Conceptual Design - What We Wanted to Learn and Why

As is conventional in most SIAs, this SIA survey gathered community baseline information, and initiated a process of dialogue with stakeholders that we recommend be continued during construction and afterwards.

SIAs in other countries are often based on a technical analysis of the footprint of the project.[2] For a pipeline, calculations are made of the exact amount of land to be taken permanently for compression stations, and pipeline access roads, and of temporary losses due to pipe storage sites and construction. Calculations are made of food purchases, local employment, and other temporary impacts of construction teams on local communities. The detailed footprint is also used to identify the exact numbers and locations of households to be directly affected by the project – those to be resettled and those who will suffer land losses, crop losses or other losses as a result of the project.

Much of this detailed information was not available at the time of the survey. For example, in a linear project, a pipeline access road—where one is to be built—often accounts for most of the permanent land loss. At the time of the survey, there was no detailed information or even firm general information on whether and where access roads would be built or how wide they would be. There was no clear information on how much temporary employment would be created if any. Some of the conventional analyses could thus not be done.

However, UNDP's view is that to understand the likely social impacts of a large project it is much more important to know what households and stakeholders in communities to be affected think about it, than to know what experts conclude based on an analysis of the footprint. In particular, it is important to know prior to construction:

[2] See, for example: OGP-IPECA Publications (Draft April 2002) *"Key Questions in Managing Social Issues in Oil and Gas Projects,"* and *"BTC Pipeline ESAI, Azerbaijan"* (Draft May 2002).

- what households and stakeholders along the route know and do not know about the project – and the sources of the information;
- how important they think it will be;
- what benefits they hope it might bring;
- what negative effects concern them;
- what suggestions they have about increasing positive benefits; and
- what suggestions they have for reducing negative effects.

Because the project will increase local tax revenues and may lead to the creation of a development fund, it is also important to understand what households and stakeholders think of the development prospects and development priorities for their communities.

All of this information can only be gathered by a large-scale, representative sampling of household and stakeholder opinions.

2.2 Questionnaire Design and Pretest

To gather this information, four survey questionnaires were designed: one for rural households, one for urban households, one for stakeholder groups, and a community characteristics questionnaire to be completed by local officials. In China status of rural or urban resident is indicated by his/her residential registration status according to the state regulations. Those who have obtained urban residential registration card are identified as urban residents (or urban *hukou* in Chinese) while rural residents only have rural registration cards (rural *hukou*).

To retain some comparability, the starting point for design of the household questionnaires was the questionnaires used in the earlier survey in Jiangsu and Shanghai. Comparability was retained, but the final versions of the household questionnaires used in this survey are shorter than those used in Jiangsu and Shanghai. (A pretest indicated that those questionnaires were too long.)

Design of all four questionnaires was based much more on Living Standards Measurement Survey (LSMS) examples. These LSMS questionnaires have been carefully pre-tested, refined and used in surveys supported by the United Nations (UN), the United Nations Children's Fund (UNICEF), and the World Bank all over the world.[3]

The household questionnaires contain three modules covering: (1) the pipeline; (2) household characteristics; and (3) living standards and opinions about development priorities for the future. The main differences between the urban and rural questionnaires are in the questions about housing characteristics, consumers' durables, and household income ranges.

The community characteristics questionnaire contains five modules covering: (1) basic demography; (2) the economy; (3) education, culture, and local politics; (4) health and health services; and (5) the environment.

[3] For examples of questionnaires, see: www.millenniumindicators.un.org/unsd and www.worldbank.org/lsms.

The stakeholders questionnaire is really an "interview protocol" for stakeholder groups consisting of a mix of local officials, village heads, school teachers, and local residents including people likely to be directly affected by the pipeline. Many of the questions are open. The questionnaire is designed to prompt discussion and dialogue as well as to gather information. The questionnaire has three modules covering: (1) information about the participants in the group; (2) questions about the pipeline (these questions are similar to those asked of the households, but the stakeholder questions are open); and (3) development prospects of the community.

The questionnaires were reviewed by technical staff of UNDP and were revised several times. Some of the household questions – about the pipeline for example—were left open in the initial drafts with the expectation that the range of responses in the pretest would be used to close the questions in the final versions of the household questionnaires.

The four drafts were translated, approved by the State Statistics Bureau (SSB), and pre-tested in four provinces: Xinjiang, Gansu, Shaanxi and Anhui. There was sufficient sampling in Xinjiang along the first 200 kilometers of the pipeline route to permit a preliminary analysis of social impacts there, in anticipation that some initial construction might begin along that section of the route before the full survey could be completed. The pretest contractors, sites, and numbers of interviews are shown in the following table.

Table 2: Pretest Contractors, Sites, and Number of Interviews

Institutes	Province	House-holds	Com-munities	Stake-holders
Academy of Macroeconomics Research, State Development Planning Commission (SDPC)	Xinjiang	267	10	23
Rural Development Institute, Chinese Academy of Social Sciences (CASS)	Shaanxi	27	2	14
School of Public Policy and Management Tsinghua University	Gansu	30	4	12
Institute of Environment and Development / Leadership for Environment and Development (LEAD) China	Anhui	30	4	12

The objectives of the pretest were to improve the survey questionnaires, and to collect the data in Xinjiang. The most important finding of the pretest was that the household and stakeholder questionnaires were too long. The household questionnaires required an hour or more to complete. The group interviews took even longer.

The pretest interviewers recommended a target time for the household interviews of thirty minutes. When questionnaires are too long, there is a risk of decreasing respondent cooperation and reliability of responses.

Based on the recommendations of the pretest interviewers, the revisions of the household

questionnaires included:

- Careful re-balancing of potential positive and negative effects of the pipeline covered in the questionnaires. Questionnaires not only gather information, they also give information. There was agreement among the pretest interviewers and UNDP technical staff that the potential benefits were given too much weight in the pretest questionnaires. The balance was restored by deleting detailed questions about potential employment benefits of construction, and transportation improvements due to the pipeline road.

- Simplification and reduction of income and consumption related questions. In their pretest form, these questions were often unanswerable, generated suspicion, and thus threatened cooperation and the reliability of the answers given.

- Upward adjustment of ranges for recording urban household income, and establishment of a range for rural responses. (In the full survey, the new urban range yielded a normal distribution. The rural range was set too low; household responses were skewed toward the upper end of the range.)

- Closing of open questions based on the range of responses given in the pretest, particularly to questions about the pipeline.

- Deleting questions that the interviewers found unnecessary, for example, "Would you like more information about the pipeline?" All did.

- Deleting all redundant questions. (other than those needed for consistency checks.)

- Adding a final block of ID coding to identify households to be directly affected by the pipeline. Interviewers were to code the households to be affected as "1." Those not to be affected were coded "0."

- Correction of wording, sequences, and coding problems.

The stakeholder questionnaire was shortened by deleting a module on community characteristics. A community characteristics questionnaire was to be completed separately for each community in which stakeholder groups were to be interviewed. A second view of the communities would have been interesting, but it was decided that time available for the stakeholder meetings should be devoted to the pipeline and development prospects modules. The stakeholder questionnaire was also re-balanced between positive and negative effects of the pipeline in the same manner as the household questionnaires.

One question was added to the community characteristics questionnaire: distance in kilometers from the pipeline route. This question was intended also to help identify, and permit separate tabulations of communities closest to the route and thus likely to be most directly affected.

The State Statistics Bureau (SSB) approved the final versions of the questionnaires. The final versions are attached in Appendix 1.

2.3 Sample Design and Revisions

The sample was designed by the State Statistics Bureau. It is a stratified random design with populations in townships along the pipeline route to be stratified in four groups based on economic and social development levels. The total populations along the pipeline route are shown in Table 3.

Table 3: Populations along the Pipeline Route

Province	Number of counties along the route	Populations of counties along the route	Populations of townships closest to the route
Xinjiang	8	1,524,502	347,393
Gansu	12	3,623,264	1,451,222
Ningxia	5	1,236,043	235,520
Shaanxi	4	817,142	646,909
Shanxi	9	2,310,008	509,408
Henan	13	9,313,888	4,255,777
Anhui	8	8,579,155	1,934,296
Totals	59	27,404,002	9,380,525

Sources: County populations from SSB. Township populations from the questionnaires.

The total population of the counties along the route is 27.4 million. The total township population from which samples were drawn is 9.4 million.

To reach targets of a standard deviation of less than 3% and confidence intervals higher than 95%, the number of households to be sampled was initially estimated at 1,024 in each of the four development levels in both rural and urban areas, for a total of 8,192 households. It was clear in the pretest that there were fewer urban areas along the pipeline route than anticipated. Urban sampling was reduced in the adjusted sample of households. The adjusted sample numbers by province are shown in Table 4.

Similarly, for the stakeholder interviews, to attain targets of a standard deviation of less than 7% and confidence intervals higher than 90%, the initial estimate was a total of 1,040 stakeholder group interviews. After the pretest, the urban sampling of stakeholders was reduced. The adjusted numbers by province are shown in Table 4.

A community characteristics questionnaire was to be completed in all communities and each county in which household and stakeholder samples were interviewed. The expected number of community characteristics questionnaires by province is also shown in Table 4.

Table 4: Adjusted Sample Sizes

Province		Households			Other Interviews		
		Total	Rural Households	Urban Households	Total	Stakeholders	Communities
1	Xinjiang	267	68	199	39	32	7
2	Gansu	1,104	803	301	296	148	148
3	Ningxia	856	583	272	88	72	16
4	Shaanxi	1,106	765	341	112	83	29
5	Shanxi	649	457	192	133	94	39
6	Henan	1,111	846	265	324	162	162
7	Anhui	1,040	774	266	196	137	59
	Totals	6,055	4,298	1,836	1,160	689	471

Note: The sample size in Xinjiang was later increased to cover 700 kilometers of the pipeline route that was not sampled in the pretest. Please see Table 6.

A detailed description of how the sample was designed is attached in Appendix 2.

2.4 Survey Partners, Pipeline Information, Training, and Preparation

UNDP, through CICETE, contracted six research institutes to conduct the full survey in six provinces and the portion of the pipeline route in Xinjiang not covered in the pretest.

The six institutes are:

Central Statistical Information Consulting Center (CSICC) of the SSB
College of Rural Development, China Agricultural University
School of Public Policy and Management, Tsinghua University
Institute of Environment and Development and LEAD
Academy of Macroeconomics Research, SDPC
Rural Development Institute, CASS

Four of the institutes did the pretest. All were involved in revision of the questionnaires, and in completion of plans for the full survey and training of interviewers.

It was clear in the pretest that survey-takers would be a major source of information about the pipeline for the households interviewed. The pretest interviewers were repeatedly asked questions about the pipeline by households, including:

- Exactly where will the pipeline be placed?
- Which households will be directly affected?
- How much farmland will be lost?

- What will be the process of compensation?
- Will natural gas be available locally?
- How much employment will there be during construction and after construction?

At UNDP's request, Shell China prepared an information sheet with photographs to be given to each survey interviewer. UNDP reviewed this presentation and requested that further information be added. The final version was explained and given to interviewers in Beijing. A copy of the English translation of the information sheet, is attached in Appendix 3.

A Shell engineer explained pipeline construction at the Beijing training session. Detailed maps of the pipeline route in each province were provided to the survey teams. The survey teams were promised the assistance of Shell and PetroChina field engineers in locating the exact pipeline route in each community to be surveyed.

Interviewer training was done in two stages, the first in Beijing and the second in the individual provinces. The training session in Beijing covered detailed guidance on field interviews, quality control, survey regulations, safety, and composition of samples. The percentage of the minorities to be interviewed in a community was to be consistent with the percentage of minorities in the community.

Interviewers were instructed to make special efforts to include women in the samples. At least one stakeholder group in each country was to be all females and to be interviewed by a female interviewer. Local government officials were not to exceed 40% of participants in any stakeholder group. The stakeholder interviews at the county level were to include staff or officials who work in the pipeline project office, or departments of land resources, planning or agriculture. Local officials were not to play any role in selecting households to be interviewed, and they were not to be present at any of the household interviews.

Many of the interviewers deployed from Beijing to the provinces had already participated in the two training sessions, one for the survey and the other for the pretest. They also helped revise the questionnaires. Thus, they were quite familiar with the content of the study and quality requirement. They in turn recruited and trained local interviewers in each province. Most of these interviewers were local staff of provincial statistical institutes and university students.

Selection criteria included prior experience in field surveys and ability to speak local dialects and languages. The composition of the survey groups varied from province to province. In Xinjiang, 41% of interviewers were minority group members. In the seven provinces, women were from 35% to 64% of the interviewers, except in Gansu (23%) and Xinjiang (18%).

2.5 Data Collection

The table that follows shows field team sizes and composition in each province.

Table 5: Institutes, Provinces and Teams

Institutes	Province	Staff from Beijing	Local Staff
CSICC	Xinjiang	6	16
CSICC	Gansu	8	56
China Agriculture University	Ningxia	20	8
CASS	Shaanxi	6	45
Tsinghua University	Shanxi	9	60
LEAD	Henan	5	22
SDPC	Anhui	14	59

The full survey was conducted over a two-week period from May 20 to June 3. Survey teams were assigned according to the requirements of the tasks: survey-takers in the field, staff to double-check completed questionnaires, and supervisors and experts to oversee the work. Travel to survey sites was provided by provincial statistics bureaus.

The survey teams made some field adjustments in the communities after prior approval from UNDP. Based on local information about the pipeline route, towns (townships) were deleted and added in order to sample those closest to the pipeline and thus ensure that households and communities more likely to be directly affected by the pipeline would be interviewed.

Some general guidelines or rules were developed and followed by the survey teams. In particular, interviewers did their best to:

- select a replacement household when no one was at home or a household was too busy to cooperate;
- explain clearly the purpose of the visit;
- be patient, showing respect for local people;
- make phrasing as simple and easily understandable as possible, to illiterate villagers in particular;
- develop devices for questions with multiple choices and ranking (some sub-groups used cards);
- confirm answers with interviewees by repeating both questions and answers;
- moderate stakeholder discussions so that local officials would not dominate discussions.

In order to ensure quality of the survey, team members communicated and exchanged ideas among each other all the time. Sub-group leaders checked questionnaires at the end of each day. If any problems arose, the sub-group worked together to attempt to find solutions.

In some instances, township officials and village heads helped facilitate the survey. But the survey takers made random selections of the rural households to be interviewed. Rural respondents interviewed included male and female farmers, younger people and the elderly, literates and illiterates, people mainly engaged in farming, and people engaged in off-farm work in local factories and household-based enterprises.

The urban (town) respondents interviewed were only those with urban registration. The sampling should have been done among all households living in towns or cities even if they had rural

registration. As a result, the urban sample is not completely representative of urban residents. There is likely to be an upward bias in the reported urban income and other living standards. Urban respondents included people in township government administration, teachers in primary and middle schools, doctors in township hospitals, police and tax officials, as well as those with their own businesses.

Rural household interviews were conducted in most cases in homes of the interviewees where interviewers could observe housing and living conditions. In Henan and Anhui, survey teams had to locate households to be interviewed in their paddy fields and did the interviews there. Urban interviews were conducted in work places and in homes. Some interviews were conducted in shops and even in clinics. The time to complete a household interview ranged from 30 to 45 minutes – close to the target set in the revision of the household questionnaires after the pretest.

Household interviews in homes and paddy fields

Stakeholder interviews took place in rural homes or work places in towns. There is information from all the survey teams, that these stakeholder group meetings attracted much attention and that the number of active participants increased with walk-in villagers who wanted to have their say.

Stakeholders interviews in various occasions

The community characteristics questionnaires were completed by one or two technical people/cadres responsible for government statistics at township or county levels.

The total numbers of interviews in each province is shown in Table 6. The numbers meet or exceed the planned samples shown in Table 4 above, except for a slightly lower total of stakeholder group interviews. However, the column of "stakeholders and focus groups" gives the number of people who began the interviews together with the interviewers without counting more people walked in and joined the meeting after they started.

Table 6: Summary of Interviews Conducted in the Field

Province		Households			Interviews		
		Total	Rural Households	Urban Households	Total	Stakeholders and Focus Groups	Community Characteristics
1	Xinjiang (200K)	272	68	204	31	23	8
	Xinjiang (700K)	276	192	84	55	31	24
2	Gansu	1,105	803	302	239	148	91
3	Ningxia	874	595	279	92	74	18
4	Shaanxi	1,099	763	336	114	85	29
5	Shanxi	649	457	192	92	54	38
6	Henan	1,128	857	272	260	164	96
7	Anhui	1,048	781	267	196	137	59
	Totals	6,451	4,516	1,936	1,079	716	363

UNDP staff made field visits during the data gathering. Their observations -- and information from the field teams -- seem to support the following generalizations about the survey.

- There was very good cooperation and participation of villagers and urban residents in the survey.

- Respondents understood that the pipeline was a national project, and that the purpose of the interviews was to collect information on their knowledge, ideas, concerns, comments and suggestions. Responses were candid and frank.

- There was also very good cooperation from local governments and authorities, and other stakeholders.

- The information sheet about the pipeline, and the pipeline route maps helped the interviewers to do a better job and to respond to at least some of the questions raised by household respondents. Some of the household respondents were still not well informed about the project.

- Pinpointing the exact location of the pipeline route was not often possible. As a result, it was not possible to identify the precise households that would be directly affected.

After the interviews a number of quality checks were performed in the field. At the end of each day, supervisors on each sub-team reviewed all the completed questionnaires to confirm that there were no omitted answers, that responses were consistent and logical, and that the coding of answers was correct.

Supervisors then randomly selected 10-20% of the questionnaires to be double-checked the next

day. Telephone call-backs were made to confirm answers to basic questions and a sample of other questions. Back-checks were obviously limited to households with telephones, although in many of the sampled communities the majority of households now have phones. Still where phones are not widespread, call-backs were limited to households likely to have higher than average incomes and levels of educational attainment. The results of the back-checks were positive, showing a high degree of consistency of the collected information with what people said on the phone.

2.6 Data Entry and Processing

The survey teams delivered all the completed questionnaires to CSICC/SSB for data entry and processing.

The questionnaires were counted in the order of provinces and counties to ensure that the number of questionnaires the SSB received was the same as the number of questionnaires reported to them. During the counting, the questionnaires were checked to make sure that all questionnaires were filled in correctly. For example, for all the single-choice questions, no more than one option was chosen. Questionnaires judged to be of poor quality were deleted from further analysis. Security of the questionnaires was protected to be sure that they stayed in the right order, and no questionnaires were moved or removed without permission.

In a final check before data entry, 5% of the questionnaires and interview protocols conducted by the implementing institutions were back-checked through telephone by CSICC/SSB in Beijing. Again, high levels of consistency were found.

All open-ended questions in the questionnaires were coded. The CSICC/SSB categorized all answers into different groups with each group containing similar opinions, and gave each group an ID number with an appropriate description of the group. This involved judgements about what to cluster and how to describe the clusters. Most of the clusters seem discrete and clear. A few are more mixed, less discrete, and less clear. The CSICC/SSB also computed the number of responses in each group.

Data entry was done by 15 staff members over six days. Double data entry was used to assure accuracy of entry. The information in each questionnaire was entered twice, each questionnaire by two different people. The entries were compared. If the two were not exactly the same, the entry was rechecked and corrected.

Checking the database was the last step in the data entry process. After entering all the data from the questionnaires, the data entries were examined against a set of expected ranges of responses. For example, the ages of the respondent could not exceed 99 or be below 10. The number of people in the household could not exceed 20. The educational attainment could not exceed 20 years. When a response exceeded the permitted range, the original questionnaire was checked. If the problem was in the data entry, the entry was corrected. If the problem was in the questionnaire, all of the information from that questionnaire then was deleted from the database.

The total samples in the overall database are shown in the table that follows.

Table 7: Samples in the Database

Province		Households			Interviews		
		Total	Rural Households	Urban Households	Total	Stakeholders and Focus Groups	Community Characteristics
1	Xinjiang (200K)	272	68	204	31	23	8
	Xinjiang (700K)	276	192	84	55	31	24
2	Gansu	1,068	779	289	239	148	91
3	Ningxia	867	590	277	92	74	18
4	Shaanxi	1,097	761	336	114	85	29
5	Shanxi	621	447	174	92	54	38
6	Henan	1,121	850	271	260	164	96
7	Anhui	1,046	780	266	195	136	59
	Totals	6,368	4,467	1,901	1,078	715	363

These totals in the database are close to or exceed the adjusted planned samples shown in Table 4 above, even with deletions of questionnaires in the SSB quality checks. There are 13 fewer stakeholder group interviews in the database than in the adjusted sample plan. Also, fewer communities were sampled than planned after adjustments were made for the pipeline route.

The recorded number of participants in the stakeholder groups totaled 4,066. This figure, however, does not count walk-ins, that in some cases doubled the recorded number of participants. If the community characteristics questionnaire is counted as one interview, and the same for household interview, then the total number of people interviewed (and included in the database) were at least 10,791.

2.7 Data Analysis and Report Writing

A full and detailed provincial report outline was prepared by UNDP and was revised three times based on suggestions by professionals in UNDP and the CSICC/SSB. The outline covers more than 50 tables and numerous suggested statistical analyses, including combined data files, correlation matrices, regressions, LOGITs, and special tabulations and analysis of communities and households nearest to the pipeline route.

All of the tables and most of the statistical analyses specified in the outline were completed for each province by the SSB, and supplied to the authors of each provincial report. An "Authors Note" and a "Format Memo" were provided to the authors of the seven reports to ensure consistency of coverage and format. First drafts of the provincial reports were completed by these authors. The drafts were then reviewed and revised by teams of national and international

consultants. These drafts were reviewed by UNDP staff and by CICETE. The final drafts are attached as section reports to this overall report.

2.8 Overall Findings

The overall findings, province by province, are summarized in the table attached below. The populations surveyed were mainly rural and agricultural. In most provinces they had incomes (estimated from consumption) lower than community averages, and most spend in excess of 50% of non-food consumption for education and health. Almost all said that health care was too expensive. Most had color TVs. Most used coal or briquettes for fuel. Most knew something, but not much about the pipeline before the survey. Most hoped the pipeline would provide natural gas as a fuel and benefits to the local economy. In some provinces, the perceived importance of the pipeline varied with distance from the route. But there were few differences of opinions on positive and negative effects of the pipeline -- including preferences for types of compensation -- between populations close to the pipeline and those farther away. More details on the findings are provided below.

Table 8: Overall Findings – Cross-Provincial Comparisons (HH: Households; SH: Stakeholders)

	Xinjiang	Gansu	Ningxia	Shaanxi	Shanxi	Henan	Anhui	Average
Total Population of Surveyed Counties (T-8)	1,524,502	3,623,264	1,236,043	817,142	2,310,008	9,313,888	8,579,155	3,914,857
Total % Minority among Surveyed Counties (T-8)	61%	1.7%	33%	0.4%	0.4%	1.4%	1.2%	14%
Total % in Agriculture, HHs (T-9)	60%	70%	49%	82%	70%	84%	76%	70%
Average Annual Per Capita Income-Community Leader (T-9)	5,220	3,420	2,068	1,308	3,248	3,029	3,359	3,093
% Access to Telephone - Community Leader (T-10)	76%	45%	22%	20%	52%	49%	32%	42%
% with Phone – HH Survey-Rural (T-27)	29%	67%	28%	45%	68%	58%	48%	49%
% with Phone - HH Survey-Urban (T-28)	77%	77%	78%	74%	66%	86%	86%	78%
% with Mobile Phone - HH Survey-Urban (T-28)	36%	60%	62%	55%	53%	57%	66%	56%
Top Infrastructure (including Credit) Ranking by HH (T-11)	public transport	public transport	roads	public transport	access to credit	public transport	access to credit	public transport 4 of 7
Bottom Infrastructure Ranking by HH (T-11)	Internet access	Internet access	Internet access	Internet access	Internet access	Internet access	Internet access	Internet access. 7 of 7
% Females Completing nine-year compulsory education (T-12)	98%	96%	72%	79%	89%	95%	80%	87%
Leading Causes of Death (T-14)	cancer 5 of 6	cancer 8 of 12	cancer 2 of 5	cancer / heart disease	cancer 7 of 9	heart disease 6 of 13	Cancer 4 of 8	cancer
Leading Causes of Illness (T-14)	heart, cancer 2 each	heart disease 5 of 12	others 3 of 5	heart disease 2 of 4	cancer 4 of 9	heart disease 5 of 13	lung disease 5 of 8	no clear pattern
Most Severe Environment Problem (T-17)	sand storms	sand storms	sand storms	drought	drought	drought	drought	drought
Top Negative Characteristic of Health Services-Rural (T-22)	too expensive	too expensive	too expensive	too expensive	too expensive	too expensive	too expensive	too expensive 7 of 7
Top Negative Characteristic of Health Services-Urban (T-23)	too expensive	too expensive	too expensive	too expensive	too expensive	too expensive	not enough facilities	too expensive 6 of 7
Top Choice for Health Care-Rural (T-24-1)	town clinic	town clinic	town clinic	general hospital	village clinic	village clinic	village clinic	town/vill clinic 6 of 7
Significant Variables in Health Choice-Rural?	Inccom+, mother's educ+	no	no	Income+, Hukou educ+	hukou educ+	no	no	no clear pattern
Top Choice for Health Care-Urban (T-24-2)	general hospital	general hospital	general hospital	general hospital	general hospital	general hospital	general hospital	general hosp. 7 of 7
Significant Variables in Health	no	no	no	Income+,	income+	mother's educ+	no	no clear pattern

Table 8: Overall Findings – Cross-Provincial Comparisons (HH: Households; SH: Stakeholders)

		Xinjiang	Gansu	Ningxia	Shaanxi	Shanxi	Henan	Anhui	Average
	Choice-Urban?				hukou educ+				
Most Commonly Used Fuel-Rural (T-25)		coal or briquette	coal or briquette	coal or briquette	coal or briquette	coal or briquette	coal or briquette	coal or briquette	coal or briquette 7 of 7
Most Commonly Used Fuel-Urban (T-25)		coal or briquette / LPG	LPG	LPG	coal or briquette	coal or briquette	coal or briquette	coal or briquette	coal or briquette 5 of 7
Most Prevalent (non-electric meter) Consumer Good-Rural (T-27)		color TV: 76%	color TV: 89%	color TV: 73%	color TV: 60%	color TV: 77%	color TV: 63%	B&W TV: 58%	color TV: 67%
Most Prevalent (non-electric meter) Consumer Good-Urban (T-27)		color TV: 90%	color TV: 96%	color TV: 97%	color TV: 89%	color TV: 89%	color TV: 95%	color TV: 94%	color TV: 93%
Average Per Capita (P.C.) Income-Rural (RHPCY)		1,568	1,806	1,596	1,152	1,670	1,393	1,332	1,502
	Number of Rural Surveyed Households (T-29)	192	778	590	761	447	850	780	628
	Significant Variables in RHPCY?	no	no	hukou educ+, min-	hukou educ+, mother's educ+	no	hukou educ+	mother's educ+	no clear pattern
Average Per Capita Income-Urban (UHPCY)		4,888	5,371	4,850	6,104	4,524	4,219	4,076	4,862
	Number of Urban Surveyed Households (T-30)	84	288	227	336	174	272	226	229
	Weighted Average Per Capita Income (Urban + Rural)	2,579	2,769	2,500	2,668	2,470	2,078	1,949	2,401
	Weighted Average P.C. Inc as % of P.C. Inc Above (T-9)	49%	81%	121%	204%	76%	69%	58%	78%
	Significant Variables in UHPCY?	no	hukou educ+	mother's educ+	hukou educ+	no	no	hukou educ+	no clear pattern
Average Rural Consumption Expenditure per Month (T-31)		908	521	606	562	548	394	630	596
	Average Rural Consumption Expenditure per Year (Rmb)	10,896	6,252	7,272	6,744	6,576	4,728	7,560	7,147
	Avg Family Size-Rural (T-18)	5.1	4.2	4.8	4.6	4.4	4.6	4.5	4.6
	Per Capita Rural Consumer Expenditures per Year	2,132	1,489	1,525	1,472	1,501	1,023	1,691	1,557
	% of Per Capita Income from Community Leaders (T-9)	41%	44%	74%	113%	46%	34%	50%	50%
	% Share of Food in Consumption-Rural (T-31)	53%	52%	34%	40%	41%	41%	36%	43%
	% Share of Education in Consumption-Rural (T-31)	7%	22%	15%	29%	22%	26%	15%	19%

Table 8: Overall Findings – Cross-Provincial Comparisons (HH: Households; SH: Stakeholders)

		Xinjiang	Gansu	Ningxia	Shaanxi	Shanxi	Henan	Anhui	Average
	% Share of Health in Consumption-Rural (T-31)	11%	18%	21%	23%	15%	21%	13%	17%
	% Share of Education & Health in Non-Food Expend-Rural	38%	82%	55%	86%	63%	79%	43%	64%
Average Urban Consumption Expenditure per Month (T-32)		1,151	902	840	783	774	633	754	834
	Average Urban Consumption Expenditure per Year (Rmb)	13,812	10,824	10,080	9,396	9,288	7,596	9,048	10,006
	Avg Family Size-Urban (T-19)	4.6	3.3	3.9	3.9	3.6	4.0	3.6	3.8
	Per Capita Urban Consumption Expenditure per Year	3,016	3,310	2,611	2,441	2,566	1,894	2,499	2,613
	% of Per Capita Income from Community Leaders (T-9)	58%	97%	126%	187%	79%	63%	74%	84%
	% Share of Food in Consumption-Urban (T-32)	48%	47%	42%	46%	37%	49%	50%	46%
	% Share of Education in Consumption-Urban (T-32)	10%	17%	22%	30%	21%	21%	19%	20%
	% Share of Health in Consumption-Urban (T-32)	9%	15%	16%	25%	11%	17%	16%	16%
	% Share of Education & Health in Non-Food Expend-Urban	36%	61%	65%	101%	51%	75%	71%	66%
SH Rank of Overall Development Prospects (T-33) **5=very good**		3.8	3.8	3.8	3.2	3.3	3.8	3.3	3.6
	Significant Variables in SH Opinions for Overall Prospect?	women+	n/a	min+, education+	income+	no	n/a	education-	no clear pattern
Average SH Rank of Agriculture Development Prospects (T-33)		3.6	3.1	3.4	2.5	3.4	3.3	2.5	3.1
Average SH Rank of Industry Development Prospects (T-33)		2.26	2.41	3.19	1.75	2.39	2.81	2.43	2.46
Average SH Rank of Services Development Prospects (T-33)		3.287	2.731	3.251	2.635	2.574	2.739	2.234	2.778
Top SH Rank for Development Priorities (T-34)		improved education	improved education	improved education	Improved education	roads & transport	improved education	roads & transport	education 5 of 7
Bottom SH Rank for Development Priorities (T-34)		communication & Internet	communication & Internet	communication & Internet	communication & Internet	communication & Internet	communication & Internet	communication & Internet	Internet 7 of 7
	Significant Variables in SH Opinions for Agri Prospect	phones+	n/a	min+, inc-	no	no	n/a	no	no clear pattern
	Significant Variables in SH	no	n/a	educ+	inc+, educ+,	no	n/a	educ+	no clear pattern

Table 8: Overall Findings – Cross-Provincial Comparisons (HH: Households; SH: Stakeholders)

		Xinjiang	Gansu	Ningxia	Shaanxi	Shanxi	Henan	Anhui	Average
	Opinions for Industry Prospect				political part-				
	Significant Variables in SH Opinions for Services Prospect	no	n/a	min+, educ+	no	no	n/a	educ+	no clear pattern
% HHs Saying Community Better Today than Before-Rural (T-35)		90%	93%	85%	87%	88%	94%	93%	90%
% HHs Saying Community Better Today than Before-Urban (T-35)		70%	80%	78%	84%	79%	84%	82%	80%
HHs' Top Development Priority-Rural (T-36)		improved schools	improved schools	improved schools	public utilities	public utilities	public utilities	public utilities	public utilities 4 of 7
HHs' 2nd Highest Development Priority-Rural (T-36)		public utilities	public utilities	access to loans	improved schools	improved schools	improved schools	improved schools	improved school 4 of 7
HHs' 3rd Highest Development Priority-Rural (T-36)		medical facilities	medical facilities	employment opportunities	medical facilities	employment opportunities	employment opportunities	medical facilities	med facilities 4of 7
	Significant Variables for Rural HH Priorities?	*	n/a	*	*	*	*	no	no consistent pattern
HHs' Top Development Priority-Urban (T-36)		improved schools	public utilities	improved schools	public utilities	public utilities	public utilities	public utilities	public utils 5 of 7
HHs' 2nd Highest Development Priority-Urban (T-36)		public utilities	improved schools	public utilities	improved schools	improved schools	improved schools	improved schools	improved school 5 of 7
HHs' 3rd Highest Development Priority-Urban (T-36)		medical facilities	medical facilities	environment preservation	medical facilities	medical facilities	environment preserved	medical facilities	med facilities 5 of 7
	Significant Variables for Urban HH Priorities?	*	n/a	environment: income+	*	environment: mother's educ-	no	no	no consistent pattern
Most Rural HHs Know How Much re Pipeline (T-37)? **4=a lot**		2.2	2.7	1.9	2.3	2.7	2.4	2.7	2.4
Most Urban HHs Know How Much re Pipeline (T-38)? 4=a lot		2.6	3.0	2.5	2.7	2.8	2.7	2.9	2.7
Top Source of Information on Pipeline-Rural (T-39)		media	media/ SIAsurvey	SIA Survey	pipeline surveyor team	pipeline surveyor team	SIA survey	SIA survey / media	SIA survey 4 of 7
Top Source of Information on Pipeline-Urban (T-39)		media	media	media	media	media	media	media	media 7 of 7
Most SH Perceive How Important (T-40)? **5=very important (v.i.)**		3.4	4.1	3.5	3.3	3.8	3.7	3.9	3.7
Most Rural HHs Perceive How Important (T-41)? **5=v.i.**		2.9	3.4	2.5	2.6	2.6	3.4	2.9	2.9
	Is Distance Variable Significant in Rural?	-0.2	no	-0.1	no	yes	no	-0.1	no or weak -
	Other Significant Variables for	no	no	no	no	hukou educ+	no	RHPCY, 0.2	no 4 of 7

Table 8: Overall Findings – Cross-Provincial Comparisons (HH: Households; SH: Stakeholders)

		Xinjiang	Gansu	Ningxia	Shaanxi	Shanxi	Henan	Anhui	Average
	Rural Importance?								
Most Urban HHs Perceive How Important (T-41)? **5=v.i.**		3.2	3.6	3.0	3.1	2.7	3.4	2.9	3.1
	Is Distance Variable Significant in Urban?	no	no	no	no	yes	no	no	no
	Other Significant Variables for Urban Importance?	no	hukou educ+	no	no	no	no	no	no
Most Frequently Cited Benefit, SH (T-42)		promote economy	employment / income	employment / income	use gas	infrastructure	use gas	promote economy	none typically cited
Best Way to Improve Impact, SH (T-42-1)		monitor construction	off-takes	off-takes, monitor	off-takes	local coordination	off-takes	off-takes	off-takes 5 of 7
Most Frequently Cited Negative, SH (T-43)		safety	loss of land	damage farming	loss of land	loss of land	loss of land	loss of land	loss of land 5 of 7
Best Way to Mitigate, SH (T-43-1)		monitor construction	compensation standard	compensation standards	compensation standard	compensation standard	compensation standard	consult locals	compensation standard 5 of 7
Most Frequently Cited Benefit, HH-Rural (T-44)		employment opportunities	gas as fuel	gas as fuel, employment	gas as fuel	gas as fuel	gas as fuel	gas as fuel	gas as fuel 6 of 7
Most Frequently Cited Negative, HH-Rural (T-44)		reduce yields	reduce land	reduce land	reduce land	reduce land, yields	reduce yields	reduce yields	reduce land 4 of 7
Most Frequently Cited Benefit, HH-Urban (T-45)		gas as fuel	gas as fuel	gas as fuel	gas as fuel	gas as fuel	gas as fuel	gas as fuel	gas as fuel 7 of 7
Most Frequently Cited Negative, HH-Urban (T-45)		safety	safety	safety	safety	safety	safety	safety	safety 7 of 7
Most Preferred Compensation-Rural (T-46)		cash	cash	get new house	cash	get new house	get new land	cash	cash 4 of 7
Most Preferred Compensation-Rural <1Km (T-46-1)		n/a	cash	get new house	cash	get new house	get new land	cash	cash 4 of 7
Most Preferred Compensation-Urban (T-46)		cash	get new house	get new house	get new house	get new house	get new house	get new house	get new house 6 of 7
Most Preferred Compensation-Urban <1Km (T-46-1)		n/a	get new house	get new house	get new house	get new house	cash	get new house	get new house 5 of 7

3. How Reliable are the Findings?

The data collected in this SIAsurvey were checked and double-checked during data collection and data entry. There is a strong reason to expect that what people said about themselves, the pipeline, and development prospects for their communities, was accurately recorded, entered, and analyzed. However, there are broader questions about possible bias and reliability that need to be addressed.

3.1 Representative Samples

The reliability of the information collected depends, in important part, on the ethnic and gender composition of the household and stakeholder samples interviewed. Are they representative of the overall populations of the communities and counties along the pipeline, from which they were drawn? This question is particularly important in autonomous regions and provinces with large minority populations in communities along the pipeline route.

The sample averages shown in the individual provincial reports are closely representative of the ethnic composition of the overall populations along the pipeline route. In many samples, ethnic populations are over-represented and Han are under-represented.

It is clear, however, that in all but one of the samples in the seven provinces, women are under-represented, most among rural household respondents, but less among stakeholders and urban household respondents. (The exception is Xinjiang stakeholder groups in the second section report where 61% of participants were women.) The proportion of women in the samples may accurately reflect the persisting predominance of men as spokespersons for rural households and the predominance of man among local officials and other stakeholders. On the other hand, whenever women were available during the interview, they always joined in and gave their opinions. There may be an important loss of information here; and it is hard to know what was lost. Statistical tests of relationships between stakeholder opinions and gender found no significant relationships, except in Xinjiang, where groups with more women were more optimistic about development prospects for their communities.

Another potential source of bias in the samples is the replacement households selected for interviews. If no one was at home, a replacement household – nearby and outwardly with the same characteristics –was selected. These precautions were to offset predictable interviewer preferences for households that are close (to city and village centers), better educated, and mandarin-speaking. Given the time pressures of the survey, however, it is hard to know for sure whether replacements were as random and representative as they should ideally have been.

Another potential source of bias is the time of the day when interviews were conducted. The pretest interviewers found that in rural areas people were busy with crops, and in urban areas individuals at home during the workday were preschoolers, the unemployed, the elderly, and the infirm. To offset these problems, the survey teams did as much as possible of the rural interviewing during lunch hours, and urban interviewing in early evenings and on weekends. Survey teams also showed great initiatives in obtaining needed interviews. In Anhui and Henan,

some farm families were interviewed in the paddy fields. Again, because of the time pressure of the survey, it is not possible to know for sure about bias due to time of the day.

The precise households to be directly affected by the pipeline could not be identified. As a result, interviewers coded any household living in a community through which the pipeline will pass as an affected household. Clearly there is a lack of precision here. This is surprising and disappointing so close to actual construction.

On the other hand, there is clear evidence in the survey that the characteristics and opinions of households to be directly affected will not be significantly different from those reported in a community close to the route (less than one kilometer) or even farther away. In most instances, households did not know for sure if they would be directly affected. Most undoubtedly answered the pipeline questions with that possibility in mind. This will need to be confirmed in the monitoring and follow-up that we recommend.

3.2 Role and Influence of Local Officials

Local officials played an important role in facilitating access of the survey teams to the communities in which households were to be interviewed. Local officials were among those interviewed about community characteristics. They were also included in the stakeholder group interviews in that community.

However, local officials were to have no role in selecting the households to be interviewed. They were also not to be present at any of the household interviews. This was stressed continually in all the preparations for the survey and in the training of supervisors and interviewers.

Reports from the survey teams confirm that local officials were not present at the household interviews, that the interviews were anonymous, and that the completed questionnaires and results of the interview were not given or reported to local officials. There is also ample evidence from the survey teams that household responses were candid and frank.

Part of the explanation may simply be the speed of the survey. It all happened in two weeks and without lengthy prior notice. Local officials who wanted to actively influence household opinions had little time to do so.

3.3 Questionnaire Checks and Statistical Effects

There is, of course, the broader possibility that local officials and the media may have biased overall opinion in a community toward a more favorable few of the pipeline than households might otherwise have had.

There is survey evidence that some local officials were not fully informed, and that some resent the fact that they have—as yet—no clear role in the pipeline plans for their communities. This may have reduced their inclination to promote strong support in their communities. But it is safe

to assume that some did such promotion on the expectation that higher level officials would want them to do so.

The household questionnaires are structured, in part, to identify and minimize such bias. The pipeline module of the household questionnaires begins with a comparatively neutral set of questions about the pipeline. (Please see the questionnaires in Appendix 1). The pipeline module asks, first, how much people know about the pipeline and where they obtained the information. The media, the survey-takers, and pipeline surveyors were the major sources cited. Village heads and local authorities were sometimes the third most common source, and often ranked lower than that. Thus there is a reason for some expectation that the influence of local officials was limited.

The second set of questions deals with the perceived "importance" of the pipeline to households. The perceived importance of the pipeline to households was consistently lower than the perceived importance to stakeholder groups.

The final set of questions deals with expected benefits and expected negative effects of the pipeline. (The multiple-choice answers to both are based on the range of responses to open questions on positive and negative effects in the pretest.) The questionnaires ask about the positive expectations first, on the assumption that people may have been influenced by media coverage or local officials to report expectations of positive impacts. The module next asks about expected negative effects. As mentioned in the section on methodology, questionnaires not only collect information, they also give information to the people being interviewed. The questionnaire effectively tells respondents that there may be a range of negative effects.

Most important, many of the listed negative effects (based on the pretest open questions) are the precise inverse of positive expectations about the pipeline. A pipeline route that avoids impacts is a positive benefit. Loss of land and crops is negative. Improved infrastructure and access due to a pipeline road is positive. Construction damage to local roads is negative. Full compensation is a positive. Inadequate compensation is negative. An important measure of candor, then, is the consistency of the reporting of these inverse expectations. That consistency is confirmed in the results of the survey.

In addition, if households were strongly influenced by the media and by local officials and other stakeholders, there would be little difference in views about the pipeline between stakeholder groups and households. In fact, in every province stakeholders see the pipeline as more important than do households.

There is, finally, a purely statistical effect of averaging. Skewed responses, positive or negative, are averaged down as the data are aggregated to community, county and provincial levels.

3.4 Interpreting Results with Likely Bias

Of course, none of these checks and effects is any guarantee that the information collected in this SIA survey is without bias. On the contrary, totally unbiased information is an academic ideal, never a reality in the tumult and noise of big surveys done in the real world.

What is possible and important is to assess the likely direction of the bias and interpret the results accordingly. Some directions of possible biases seem clear.

There were measurement and estimation problems with household incomes. Estimates of rural household per capita income have a downward bias. Estimates of urban household per capita income have an upward bias. Consumption information was used as a proxy for income in some of the analysis. There was a loss of precision in analyses of relationships between household incomes and opinions.

There were measurement and definition problems in the distribution of labor force among economic sectors. The proportion of the labor force in agriculture may be slightly overstated. Thus, there was a loss of precision in the statistical analysis.

Because of urban sampling of only households with urban registration, better-educated and higher-income households are very likely to be over-represented in the samples.

Clustering and coding of responses to open questions involved judgement calls. A few of the clusters were mixed. The clarity of ranking of stakeholders' opinions about pipeline may have been reduced.

There was an upward bias in responses to the community characteristics questionnaire. The question about education completion rates may not have been clearly understood. As a result, the reported education completion rates seem particularly overstated.

Overall, it seems best to assume that there may be some upward bias in household views of the positive effects of the pipeline. The degree of upward bias is not likely to be large. The inverse symmetry seen in the household responses would not be there if the upward bias was large.

4. Summary of Most Common Social Impacts Identified

Even allowing for some upward bias, there seems to be a "benefit of the doubt" view of the pipeline -- a presumption among households and communities that the project is important and good for China.

A striking finding of the survey is that 80% to 90% of households in most communities say that their community is "A better place to live now," than at any time in the past. The improvements have occurred within the adult life span of most of the respondents. They look favorably on big development projects perhaps mainly for this reason.

There are worries too -- and they were expressed candidly. There is the risk that "benefit of the doubt" could become doubt or even active opposition if hopes are unrealized and worries become confirmed by facts and happenings on the ground.

In all seven provinces, households and stakeholders identified similar prospective social impacts

of the pipeline. These are summarized here. Full details can be found in each of the provincial reports.

4.1 Information Issues

At the time of the survey, there was still limited knowledge about the project among households. Interviewers were often asked questions about the project. Households have mainly learned about the project from the media and the survey-takers themselves. Some have learned of the project -- but not much about it -- from pipeline surveyors.

Some households expressed concern in their responses about details and plans for compensation. This information had not yet been posted and discussed with households in most locations at the time of the survey.

Most households did not identify local officials as important sources of information about the project. This suggests that at the time of the survey, local officials themselves may not have been well informed about the exact route, timing of construction, or detailed plans for compensation.

4.2 Positive Effects

Among the most common positive effects that households and stakeholders hope the pipeline will bring are improvements to the local economy and infrastructure, employment opportunities, and access to natural gas as fuel.

A second cluster of positive hopes about the pipeline, in some provinces, relates to compensation. If compensation is generous and fair, the pipeline will be a positive project. Most urban households preferred getting a new house. Rural households, in four of the seven provinces, preferred cash.

4.3 Negative Effects

Among the negative effects that worry households and stakeholders are pipeline safety, degradation of the environment, and damage to local roads and other infrastructure during construction.

The most widespread worries about the pipeline were about losses of land, houses, other buildings, soil fertility, and crops. Some were concerned that compensation for affected households and communities would not be transparent, fair, or equitable, or received in full.

4.4 Compensation Issues

It was clear in most provinces, that the compensation issue is critical. Worries about

compensation are the inverse of positive hopes that the pipeline will provide enough compensation to give affected households a new start. Land is scarce. Most communities and rural households depend overwhelmingly on agriculture for their livelihood. Incomes also depend on irrigation systems, fruit orchards, fishponds, paddy systems, greenhouses, and other capital improvements made over the years.

"The Land Administration Law" of January 1, 1999 specifies the general principles for compensation for land taking. The basis for compensation of cultivated land and for resettlement is the value of what the land produces. Article 47 of the Law says that compensation is to be provided for land (including buildings and other attachments), resettlement subsidies, and "young crops."

Article 47 says that: "The standard resettlement subsidies to be divided among members of the agricultural population needing resettlement shall be four to six times the average output value of the requisitioned land for the three years preceding such requisition. However, the highest resettlement subsidies for each hectare of the requisitioned cultivated land shall not exceed fifteen times its average annual output value for the three years preceding such requisition."

Standards for compensation of non-agricultural land and for compensation for houses, other attachments and for young crops are to be set by "provinces and autonomous regions."

If the compensation provided is not sufficient to maintain "original living standards" the total amount provided can be increased by provinces and autonomous regions to a level, "not to exceed 30 times the average annual output value of the requisitioned land for the three years preceding such requisition." In special circumstances, the State Council may "raise the standards of land compensation and resettlement subsidies."

Finally, "Once a plan of compensation and resettlement subsidies for requisitioned land is decided on, the local people's government shall make it known to the general public and solicit comments and suggestions from the collective economic organizations, the land of which is requisitioned, and the peasants."

Under the law and in the past practices the range of multipliers is large. The highest (30) is seven and half times the lowest (4). Thus, there can be large variations within and across provinces. There have, in fact, been large variations among infrastructure projects with similar impacts in the past such as roads, oil pipelines, and gas pipelines.

The average annual value or the past three years' output is set administratively by agricultural authorities in some locations and by market prices in others. There are similar variations in the valuation of "young crops" – crops lost to construction before than have matured and can be harvested.

There are no provisions to compensate for investments that may have been made by households to improve the productivity of leasehold cropland. Compensation for loss of fishponds, damage to irrigation systems, and loss of soil fertility due to construction is set locally. Compensation for houses and attachments on the land is also set locally. The most common standard is market

price, which may or may not be equal to replacement cost.

Compensation takes different forms in different provinces. An all-cash option may be offered. Households may be offered a plot of land - in a new and desirable location - to build their new house and farm. Some have "sold" such plots at a "profit" (above the valuation it was assigned in their compensation) to finance migration elsewhere.

Where land-takings are anticipated, an inventory of what will be lost is taken. This is based on a "freeze date" which is to be part of public notification. The inventory is checked (sometimes by the construction companies) and then forwarded up the chain eventually to provincial authorities to be used as the basis for establishing the compensation to be offered. The plan for compensation –as required by the law—is published and posted locally in every jurisdiction where losses will occur.

Clearly the perceived fairness of the plan depends on timely posting, transparency, and a workable grievance procedure – both as to the amount and actual receipt of the compensation. In principle, there are provisions for all of this. In practice, notification and posting may not be timely. They appear not to have been in many of the sampled communities along the West-East pipeline route.

Finally, compensation payments to households should continue to be administered in accordance with Chinese legislation. The administrative fees (normally in the range of 5% to 15% according to law) must be added to and not subtracted from the compensation paid to the households.

5. Recommended Mitigation

Recommended mitigation measures are taken up in the same order as the social impacts identified. But the overall recommendation should be stated first - prevention is highly likely to have modest costs and high benefits.

The survey found a reservoir of good will among households and stakeholders about the pipeline and other development projects. This good will, or "benefit of the doubt," is traceable, at least in part, to the overwhelming perception of households that things are much better now in their communities than in the past.

This reservoir of good will is a very valuable social resource. It should be protected and enhanced by anticipation and preventive resolution of social impact problems, and by provision of benefits, to the extent possible, to people along the pipeline route. It should not be squandered by mismanagement and inattention.

5.1 Information Issues

For a project so close to construction, the level of information about the pipeline among households and even among local officials– measured by their lack of importance as a source of

information—is too low. This needs to be remedied as quickly as possible. It costs no more to provide information early than at the last minute. The benefits of doing it sooner rather than later would include reduced uncertainty, reduced misinformation and rumor, better involvement and commitment of local officials, and –above all—protection of good will.

The same is true of timely public notification and posting of a compensation plan. This also lags and needs to be corrected quickly. The lag is a potentially serious threat to good will.

Finally, the information provided must address the widespread concern identified in the survey about pipeline safety—about leaks and explosions.

5.2 Positive Effects

There should be some visible positive benefits along the pipeline route.

Where feasible, local labor should be used as much as possible during construction for land clearing, land stabilization, restoration of top soil, and restoration of local roads; and after construction, for protection of uncultivated sections of the pipeline from wind or water erosion, and for maintenance of pipeline access roads.

Where feasible, bottled gas—as a viable business option—should be made available. This would create employment, mainly in the distribution of full bottles and the collection of empty ones. An initial (empty) bottle might have to be provided to poorer households who can afford a fill and refills but not the bottle deposit. Bottled gas would improve air quality and reduce deforestation. It would also likely reduce the cost of alternate fuels for households unable to afford gas.

Internet access was ranked as a low priority for development, probably because so few have access that most people do not know what they are missing. Until these areas have more landlines or wireless local loop telecom systems, their use of the Internet will remain stunted. Laying the pipeline — digging the trench and securing rights of way — presents an opportunity, at the same time, to also lay fiber optic cables along the pipeline route. A broadband fiber cable, stretching from Xinjiang to Shanghai, would ordinarily cost hundreds of millions of dollars, but government could realize significant savings by combining the installation of such fiber with the natural gas pipeline. In that way, rural communities, provided with off-take feeder fiber cables could benefit from high-speed communications just as they hope to benefit from off-takes of the natural gas. It is informed after this report was drafted that PetroChina and SDPC have already started the plan one year ago for a fiber cable of 4000 km along the pipeline route.

More generally, we recommend the establishment of a development fund (or funds) to meet the priorities for future development identified in the survey by the people themselves. The fund could be used to help leverage the use of increased tax revenues for development improvements valued by the people. These priorities include improved education and health services, improved infrastructure, and more employment options. Details on the priorities and prospects in each province are in the provincial reports.

5.3 Negative Effects

Negative impacts of the pipeline should be minimized and, if not avoidable, should be corrected as quickly as possible, ideally by the construction companies before they move on.

An inventory has already been taken of heritage sites, natural parks and reserves, temples and tombs, so that these can be avoided in the pipeline route. This practice is an excellent example of prevention. Every effort should be made to be sure that all such sites are identified and avoided.

In this, and in other aspects of prevention and quick mitigation, there is a special potential role of the construction teams and companies – at least ten of them - that will actually construct the pipeline.

We recommend that the contracts signed with these firms include clauses, incentives, and penalties to encourage:

- further identification of sensitive sites that the pipeline can still avoid, and immediate notice to be given of any sites uncovered during construction;

- other preventive measures such as minimizing dust and other environmental degradation, minimizing damage to local roads, and assuring careful restoration of topsoil when the pipeline is covered;

- prompt mitigation of negative impacts such as restoration of breaks in irrigation systems or paddy dikes, and repair of local roads; and

- active and transparent participation – as and when required—in the process of compensation.

Finally, we recommend that the project team together with related local authorities monitor closely the work of the construction companies and assist them to undertake these additional tasks successfully. Experts from the project team should oversee prevention and mitigation of negative impacts. Good community relations are important for construction companies as they want to get along with the local people, if for no other reason than to avoid problems with them.

5.4 Compensation

One of the most certain findings of the survey is that how compensation is handled will determine how households and stakeholders view the pipeline project. Mismanagement of compensation is a big threat to goodwill, and thus to how people will view other government development projects in the future.

A review of practices along the length of the pipeline route is now underway. Flexibility and local discretion are a problem but perhaps also an opportunity to move even closer to World

Bank standards for compensation. Such standards include:

- Community preparation and support.
- Restoration (in real terms) of pre-construction living standards.
- Valuation of losses at replacement cost, not depreciated cost.
- Full compensation (at market prices) for seasonal losses sustained during construction.
- Any administrative fees not to be subtracted from the compensation to affected households and communities, but to be added on top.
- Equity within and across provinces.
- Comparability with compensation provided by other infrastructure projects, including oil pipelines and roads.
- A system for monitoring and reporting on the process.
- A grievance procedure for resolving disputes.
- Sharing of the benefits from the project.

We recommend that the firms in the pipeline consortium make a commitment to monitor the compensation process and to follow-up with affected households and communities. The follow-up could make use of a subset of the questions asked of households and stakeholders in this SIA survey.

6. Lessons Learned

This section summarizes the lessons learned and how the SIA process might be improved for future infrastructure projects in China.

Big infrastructure projects clearly have a momentum, a visibility, an imperative all their own. Schedules must be kept, obstacles overcome, cost overruns avoided, and construction completed.

Social impact assessments are always important. But they are always likely to be done within the schedules and imperatives of the projects themselves.

The most important lesson learned, perhaps, is that it is possible to conduct a high quality survey to collect valuable information about diverse communities along a major infrastructure project in a short period of time. In this instance, special thanks are due to the survey teams and authors of the reports for their energy, dedication, and professionalism. Other similar social impact assessments along proposed pipelines in other countries took a year to complete while this one was completed in three months or a quarter of the normal time.

The SIA confirmed the importance of learning from sample surveys the opinions and views of the people directly or indirectly to be affected. The surveys found a reservoir of good will toward development projects, a strong demand for benefits for local economies and for natural gas as a fuel, concerns about safety, clear priorities for development, and an inverse symmetry in the views about the pipeline. These are all examples of what can be learned only in surveys. The findings are important for policy and mitigation of negative impacts.

It is vital to know precisely where the pipeline or other infrastructure project will be located. This is often not known until the time for construction is near. (Many of the exact locations of the West-East pipeline were still not known at the time of the survey.) In this special situation, starting the SIA survey much earlier may not have helped.

Planning and conceptual work including methodology and design of questionnaires can and should begin before the exact location is known. This would provide an extended opportunity to build "ownership" of the objectives, methods and findings of the SIA among all parties to be involved in the construction and operation of the infrastructure project.

The SIA should begin the moment the exact location is known. If this provides extra time, it would allow more use and review of open-ended questions in both the pretest and the survey phases of the SIA. It would also allow more iterations in the pretest of questionnaires, in data analysis, and report writings.

Starting earlier would also presumably increase the time between completion of the SIA and start of construction. This would enable the builders of the project, stakeholders, and those who are concerned, to have more time to review and discuss findings so that benefits will be maximized and negative impacts minimized. Most important, it would provide more time for prevention.

More time would also allow for the project team together with the proper authorities to monitor the SIA process including clarification and publication compensation plans and schedules, establishment of monitoring mechanisms, drafting subcontracts to construction companies that include funds, clauses, incentives, and penalties to monitor and mitigate negative social and economic impacts. It would – in summary — provide more time for prevention and protection of good will among the people directly or indirectly to be affected by a big development project.

Appendix 1: Survey Questionnaires

Questionnaire code No.□-□□-□□-□□-□-□-□

Statistics Law of the People's Republic of China

Article 3 State organs, public organizations, enterprises, institutions, and self-employed industrialists and businessmen that are under statistical investigation shall, in accordance with the provisions of this Law and State regulations, provide truthful statistical data. They may not make false entries or conceal statistical data, and they may not refuse to submit statistical reports or report statistical data belatedly. Falsification of or tampering with statistical data shall be prohibited.

Questionnaire Code: 008

Executing Agency: MOFTEC

Designed by: National Bureau of Statistics

Approved Code: NBS[2002] No.15

INTERVIEW PROTOCOL

Social Impact Assessment: Stakeholders and Focus Groups

Introduction to the Session:

The interviewers should begin with a rationalization of the objectives of the interview, explaining that the respondents should provide information on the following three topics:

- Information about themselves
- Opinions and suggestions about the prospective impact of the gas pipeline during and after construction
- Development prospects and options for the community and the surrounding areas.

The interviewers should inform the respondents that there will be a mix of standard questions, which are known as closed questions, and open questions, which provide the respondents opportunities to explain, elaborate and add more information. The respondents should be notified that they will rank some of their responses on a five-point scale. Take an example, when asking the question: "How important will construction of the pipeline be to this community," respondents will be asked to tick one of the following:

- ❑ Not important
- ❑ Little importance
- ❑ Medium importance
- ❑ Very important
- ❑ Most important

Date:____/_____ □□-□□

Interviewed by:_____ □-□-□□□

Place:_____city/county_____town/township/ urban sub-district office _____Village/ neighborhood committee

Post code:_____ □□□□□□

Group：_____ □-□-□□

Contact Person:_____ **Tel:**□□□□-□□□□□□□

□**1.Urban** □**2.Rural** □

Ⅰ. RESPONDENT(S) MODULE

Q1. Brief description of the group and its members

□1.Govt staff / township cadres____ Q1-1□□ □2.non-government staffs____ Q1-2□□

□3.Urban residents ____ Q1-3□□ □4.villagers_____ Q1-4□□

□5.to be resettled or land occupied____ Q1-5□□ □6.others_____ Q1-6□□

□7.total_____persons Q1-7□□

Q2. Average years of residence in the community _____ Q2□□

Q3. Average years of education _____ Q3□□

Q4. Percent female _____% Q4□□□

Q5. Ethnic mix:

□1. Han _____ Q5-1□□ □2. _____ _____ Q5-2□□-□□

□3. _____ _____ Q5-3□□-□□ □4. _____ _____ Q5-4□□-□□

□5. _____ _____ Q5-5□□-□□ □6. Other(s)____ Q5-6□□-□□

II PIPELINE MODULE (There should be a prepared description of the gas pipeline for groups or individual respondents who lack and want more information about it. The description should explain – among other things -- that the pipeline is to be underground and that a construction road along the pipeline route is to be built and must subsequently be maintained.)

Q**6. How important will construction of the pipeline be to this community?** Q6□

□1. Not important (go to Q9) □2. Little importance □3. Medium importance

□4. Very important □5. Most important

Q7-1 Will there be positive impacts of the pipeline?

□1.Yes □2.No. Q7-1□

Q7-2 What are these positive impacts? Q7-2 ○○-○○-○○-○○

_____

_____

Q7-3 How can the positive impacts be increased? Q7-3○○-○○-○○-

○○_____

_____

Q8-1 Will there be negative impacts of the pipeline?

□1.Yes □2.No Q8-1□

Q8.2 What are these negative impacts? Q8-2○○-○○-○○-○○

_____

_____

Q8-3 How can the negative impacts be reduced? Q8-3○○-○○-○○-

○○_____

_____

Q9 Any Other Pipeline Impacts? Q9○○-○○-○○-○○-○○

_____

_____

Ⅳ. DEVELOPMENT PROSPECTS MODULE

Overall Assessment

Q10. Apart from any pipeline impacts, what are the overall prospects for the future development of this community and the surrounding areas? (Tick One) Q10□

□1. Poor □2. Fair □3. Adequate □4. Good □5. Very Good

Q11. What are the prospects in agriculture? (Tick One) Q11☐

☐1. Poor ☐2. Fair ☐3. Adequate ☐4. Good ☐5. Very Good

Q12. What are the prospects in industry? (Tick One) Q12☐

☐1. Poor ☐2. Fair ☐3. Adequate ☐4. Good ☐5. Very Good

Q13. What are prospects in services including tourism? (Tick One) Q13☐

☐1. Poor ☐2. Fair ☐3. Adequate ☐4. Good ☐5. Very Good

Importance of Specific Development Initiatives and Investments

Q14. Improved roads, transport and access (Tick One) Q14☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q15. Improved access to water and sanitation services (Tick One) Q15☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q16. Improved communication and internet access (Tick One) Q16☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q17. Improved access to credit (Tick One) Q17☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q18. Improved education (Tick One) Q18☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q19. Improved health services (Tick One) Q19☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q20. Improved environment (Tick One) Q20☐

☐1. Not important ☐2. Little importance ☐3. Medium importance
☐4. Very important ☐5. Most important

Q21.Specific Development Initiatives and Investments, Rank in order of importance

1. Improved roads, transport and access Q21-1☐
2. Improved access to water and sanitation services Q21-2☐
3. Improved communication and internet access Q21-3☐
4. Improved access to credit Q21-4☐
5. Improved education Q21-5☐
6. Improved health services Q21-6☐
7. Improved environment Q21-7☐

Q22. Other Development Needs?

_____

Q22○○-○○-○○-○○-○○-○○

Questionnaire code No.□-□□-□□-□-□

Statistics Law of the People's Republic of China

Article 3 State organs, public organizations, enterprises, institutions, and self-employed industrialists and businessmen that are under statistical investigation shall, in accordance with the provisions of this Law and State regulations, provide truthful statistical data. They may not make false entries or conceal statistical data, and they may not refuse to submit statistical reports or report statistical data belatedly. Falsification of or tampering with statistical data shall be prohibited.

Questionnaire Code: 009

Executing Agency: MOFTEC

Designed by: National Bureau of Statistics

Approved Code: NBS[2002] No.15

COMMUNITY CHARACTERISTICS QUESTIONNAIRE

(This questionnaire is for those villages and counties within 5km to the pipeline. Respondents should be those local officials or leaders, who are relatively more educated and knowledgeable.)

Date:____/_____ □□-□□

Interviewed by:_____ □-□-□□□

Place:_____city/county_____town/township

Post code:_____ □□□□□□

Contact Person:_____ _____ **Tel:**□□□□-□□□□□□□□

Ⅰ.Basic Demography:

Q1. Distance of this community from the pipeline route? (kls) Q1 □□□

Q2. Population size in 2001_____ Q2□□□□□□

Q3. Rate of growth in the last ten years _____‰ Q3□□□.□

Q4. Ethnic mix:

1. Han _____ % Q4-1□□-□□□
2. _____ _____ % Q4-2□□-□□□
3. _____ _____ % Q4-3□□-□□
4. _____ _____ % Q4-4□□-□□
5. _____ _____ % Q4-5□□-□□
6. _____ _____ % Q4-6□□-□□
7. _____ _____ % Q4-7□□-□□
8. _____ _____ % Q4-8□□-□□
9. Other(s)_____ % Q4-9□□-□□

Ⅱ.Economy

Q5. % of Population in

Rural resident

□1. % of population in agriculture _____% Q5-1-1□□□

□2. % of population in industry _____ % Q5-1-2□□□

□3. % of population in services _____ % Q5-1-3□□□

Urban resident

□1. % of population in primary industry _____% Q5-2-1□□□

□2. % of population in secondary industry _____ % Q5-2-2□□□

□3. % of population in tertiary industry _____ % Q5-2-3□□□

Q6. Average annual per capita income (yuan)_____Q6□□□□□

Q7. % of Households poor _____%

Q7□□□

Q8. % of Households with

□1. % of households with electricity _____% Q8-1□□□

□2. % of households with telephone _____ % Q8-2□□□

□3. % of households with piped water _____ % Q8-3□□□

Q9. Road access (Tick One) Q9□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Q10. Availability of public transport(Tick One)Q10□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Q11. Community access to the Internet (Tick One)Q11□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Q12. Community access to credit (Tick One)Q12□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Ⅲ.Education, Health, Culture and Local Politics

Q13. Highest grade offered (Tick One) Q13□

□1. No □2. Elementary School □3. Junior high School

□4. Senior high school □5. College

Q14. Completion Rates % people completing 9 years of compulsory education_____% Q14□□□

□1. % of males completing 9 years of compulsory education_____% Q14-1□□□

□2. % of females completing 9 years of compulsory education_____% Q14-2□□□

Q15. Assessment of quality of education (Tick One) Q15□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Q16. Community access to cultural facilities (Tick One) Q16□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Q17. Household's involvement and participation in community's decision making, governance and local elections (Tick One) Q17□

□1. Poor □2. Fair □3. Adequate

□4. Good □5. Very Good

Ⅳ. Health and Health Services

Q18. What is the leading cause of death in this community? (Tick One) Q18□

1. Heart Disease	□1. yes	□2. no Q18-1□
2. Lung Disease	□1. yes	□2. no Q18-2□
3. Cancer	□1. yes	□2. no Q18-3□
4. Stroke	□1. yes	□2. no Q18-4□
5. Other, please specify_____	□1. yes	□2. no Q18-5○

Q19. What is the most dominant disease in this community? (Tick One) Q19□

1. Heart Disease	□1. yes	□2. no Q19-1□
2. Problems of digestion	□1. yes	□2. no Q19-2□
3. Cancer	□1. yes	□2. no Q19-3□

4. Stroke	□1. yes	□2. no Q19-4□
5. women's disease	□1. yes	□2. no Q19-5□
6. Other, please specify_____	□1. yes	□2. no Q19-6○

Q20. What is the Highest level of health service available (Tick One) Q20□

1. Clinic in village	□1. yes	□2. no Q20-1□
2. Clinic in town	□1. yes	□2. no Q20-2□
3. General hospital	□1. yes	□2. no Q20-3□
4. Pharmacy	□1. yes	□2. no Q20-4□
5. A traditional healer	□1. yes	□2. no Q20-5□
6. Other, please specify_____	□1. yes	□2. no Q20-6○

Q21. Assessment of health services quality (Tick One) Q21□

□1. Poor □2. Fair □3. Adequate
□4. Good □5. Very Good

Ⅴ. Environment

Q22. Assessment of the community's environmental quality (Tick One) Q22□

□1. Poor □2. Fair □3. Adequate
□4. Good □5. Very Good

Q23. Which ones of the following environmental problems are present in the community:

1. Water pollution	□1. yes	□2. no Q23-1□
2. Soil degradation	□1. yes	□2. no Q23-2□
3. Sewage	□1. yes	□2. no Q23-3□
4. Noise pollution	□1. yes	□2. no Q23-4□
5. Drought	□1. yes	□2. no Q23-5□
6. Flood	□1. yes	□2. no Q23-6□
7. Soil Erosion	□1. yes	□2. no Q23-7□
8. Deforestation	□1. yes	□2. no Q23-8□
9. Sand storms	□1. yes	□2. no Q23-9□
10. Solid waste	□1. yes	□2. no Q23-10□
11. Other, please specify_____	□1. yes	□2. no Q23-11○

Q24. What other characteristics of this village (community) are important for us to know?

_____

_____

_____

Q24○○-○○-○○-○○-○○-○○

Questionnaire code No.□-□□-□□-□□-□□-□-□-□

Statistics Law of the People's Republic of China

Article 3 State organs, public organizations, enterprises, institutions, and self-employed industrialists and businessmen that are under statistical investigation shall, in accordance with the provisions of this Law and State regulations, provide truthful statistical data. They may not make false entries or conceal statistical data, and they may not refuse to submit statistical reports or report statistical data belatedly. Falsification of or tampering with statistical data shall be prohibited.

Questionnaire Code: 006

Executing Agency: MOFTEC

Designed by: Statistics Bureau

Approved Code: NBS[2002] No.15

West -East Pipeline Project Questionnaire
Rural Households Social and Economic Survey

Date:____/_____ □□-□□

Interviewed by:_____ □-□-□□□

Place:_____city/county_____town/township _____Village

Post code:_____ □□□□□□

Introduction to the Session:

The session should begin with a brief prepared description of why we are asking for the cooperation and inputs from the respondent on three related topics:

- Information about the household.
- Information about the household's living standards, employment, income, consumption and social and economic prospects.
- Opinions about the prospective impact of the gas pipeline during and after construction.

Name of interviewee: _____ Tel: □□□□-□□□□□□□□

Sex: □1.M □2.F **Sex**□

Ⅰ. PIPELINE

Q1.How much do you know about the West to East Pipeline project?（Tick One）

Q1□

□1. Nothing at all □2. A little □3. Some □4. A lot

Q2.How did you find out about the Pipeline project?（Tick as appropriate）

□1. Media（newspaper, TV, Broadcast）Q2-1□ □2. Interviewer Q2-2□

□3. Village head/ local authorities Q2-3□ □4. Neighbor or friends Q2-4 □

□5. Surveyors Q2-5□ □6. Other, please specify_____ Q2-6○

Q3.How important will construction of the pipeline be to your household? （Tick One） Q3□

□1. Unaware □2. Not important □3. Little importance

□4. Medium importance □5. Very important □6. Most important

Q4.If you have to be relocated, what is your preference regarding housing relocation?

(Tick One) Q4□

□1. Unaware
□2. Be given a discounted resettlement house
□3. Opt to get cash to buy new houses on your own house
□4. Be given a good site to construct new
□5. Don't mind
□6. Other, please specify Q4-1○○-○○

Q5. Will there be positive impacts of the pipeline? Rank in order of importance.

□1. Unaware Q5-1□
□2. Increase employment Q5-2□
□3. Increase annual income Q5-3□
□4. Improve living condition by resettlement Q5-4□
□5. Access to gas for fuel Q5-5□
□6. Straw saved as fertilizer or to sell Q5-6□
□7. Compensation for land used or crops Q5-7□
□8 Other _____ Q5-8□-○

Q6. Will there be negative impacts of the pipeline? Rank in order of importance.

□1. Unaware Q6-1□
□2. Reduce arable land Q6-2□
□3. Yield affected Q6-3□
□4. House damaged Q6-4□
□5. Insufficient compensation for crops Q6-5□
□6. Insufficient straw as fuel l Q6-6□
□7. Environment polluted Q6-7□
□8. Safety Q6-8□-○
□9 Other _____ Q6-9□-○

Q7. Any other pipeline impacts?

_____

_____Q7 ○○-○○-○○-○○

II. Household Description

Q8.Do you mind to tell me your age：_____ Q8□□□

Q9.What is your household's registration status：(Tick One) Q9□

□1. rural registered permanent residence □2. urban registered permanent residence

Q10.What language do you speak in your home? (Tick One)

Q10□

□1. mandarin □2. dialect □3. both two

Q11. What ethic group do you identify with?_____ Q11□□

Q12. Number of family members in the household ?_____ Q12□□

Q13 Educational attainment of hukou holder? (years of education)_____ Q13□□

Q14 What is the educational attainment of the housewife? (years of education)_____ Q14□□

Q15. Number of household members working? _____ Q15□□

III. Living Standards, Employment, Income, Expenditures and Prospects

Note: If household is primarily nomadic, please refer to the end of the questionnaire

Q16. List of what materials is your house constructed from? How many stories does your house have?

Estimated size of your house (floor area):Q16□

□1. Cavity ___Storey___m^2 Q16-1□□-□□□

□2. Mud walls with tiled roof ___Storey___m^2 Q16-2□□-□□□
□3. Mud walls with weed roof ___Storey___m^2 Q16-3□□-□□□
□4. Stone ___Storey___m^2 Q16-4□□-□□□
□5. Brick walls with tiled roof ___Storey___m^2 Q16-5□□-□□□
□6. Concrete and brick ___Storey___m^2 Q16-6□□-□□□
□7. Shelter ___Storey___m^2 Q16-7□□-□□□
□8. Temporary house ___Storey___m^2 Q16-8□□-□□□

Q17. Does your household take water from：（Tick as appropriate）

□1. A public well Q17-1□ □2. A public pump Q17-2□
□3. Private well Q17-3□ □4. Piped water Q17-4□
□5. Other, please specify_____Q17-5○

Q18. What type of toilets do you use at home? (Tick One): Q18□

□1. Water closet □2. Pit latrine □3. Open defecation
□4. Pail system □5. No, use comfort station □6. Other, please specify_____
Q18-1○

Q19.Where do you usually go for treatment when sick? （Tick as appropriate）

□1. Clinic in village □2. Clinic in town □3. General hospital
□4. The chemist □5. A traditional healer □6. No treatment
□7. Other, please specify_____Q19-1○

Q20. Do you believe that there are enough health facilities in local government area? (Tick One)Q20□

□1. Yes □2. No

Q21. What are your feelings about the medical facilities in this area? Please tick yes or no as appropriate.

1. Too expensive □1. yes □0. no Q21-1□
2. The distance to the hospital is too far □1. yes □0. no Q21-2□
3. The waiting time is too long □1. yes □0. no Q21-3□
4. They are well-staffed □1. yes □0. no Q21-4□
5. They treat patients well □1. yes □0. no Q21-5□
6. They have enough drugs □1. yes □0. no Q21-6□

Q22. What fuel does your household use?

□1. Coal gas □1. yes □0. no Q22-1□
□2. Natural gas □1. yes □0. no Q22-2□
□3. Liquefied petroleum gas □1. yes □0. no Q22-3□
□4. Electric cooker □1. yes □0. no Q22-4□
□5. Coal or honeycomb-shaped briquette □1. yes □0. no Q22-5□
□6. Firewood □1. yes □0. no Q22-6□
□7. Straw □1. yes □0. no Q22-7□
□8. methane □1. yes □0. no Q22-8□

Q23. Which of the following does your household have?

□1. Electricity meter □1. yes □0. no Q23-1□

□2. Black and white TV	□1. yes	□0. no	Q23-2□
□3. Color TV	□1. yes	□0. no	Q23-3□
□4. Refrigerator	□1. yes	□0. no	Q23-4□
□5. Telephone	□1. yes	□0. no	Q23-5□
□6. Air conditioning	□1. yes	□0. no	Q23-6□
□7. Washing machine	□1. yes	□0. no	Q23-7□
□8. Motor cycle	□1. yes	□0. no	Q23-8□
□9. Car or van	□1. yes	□0. no	Q23-9□
□10. Boat	□1. yes	□0. no	Q23-10□
□11. Tractor	□1. yes	□0. no	Q23-11□
□12. Truck	□1. yes	□0. no	Q23-12□
□13. Agricultural transport	□1. yes	□0. no	Q23-13□

□14. Other durables, please specify_____ □1. yes □0. no Q23-14○

Q24. How long have you lived in this Village (Tick One) Q24□

□1. Less than one year □2. 1-4 year □3. 5-10 years □4. 11-20 years □5. 21 years or more

Q25. In your opinion, compared with before, would you say this community is a：

(Tick One) Q25□

□1. A better place to live today □2. About the same □3. A worse place to live today

Q26. What are the three most important priorities to improve conditions in your community:

□1. Paving roads or infrastructure/ public utilities Q26-1□

□2.Improved medical facilities and prevention programs Q26-2□

□3. Improved access to loans (e.g.: to start small businesses) Q26-3□

□4. Improve d schools (e.g. number of grades, computers, books, rebuild schoolhouse) Q26-4□

□5. Improve recreational facilities Q26-5□

□6. More training opportunities (e.g. development small enterprise) Q26-6□

□7. Cultural preservation Q26-7□

□8. Environmental preservation Q26-8□

□9. More employment opportunities Q26-9□

□10. Other, please specify_____ Q26-10○

Q27. What is your primary income source? Q27□

□1. Farming	□1. yes	□0. no	Q27-1□
□2. Off-farm work	□1. yes	□0. no	Q27-2□

Q28.Your family's estimated annual income? (tick one) Q28□

□1. Less than 1000 □2. 1001-2000 □3. 2001-3000

□4. 3001-4000 □5. 4001-5000 □6. more than 5001

Q29. Did you look for other job opportunities during the slack season in farming last year? Q29□

□1.Yes □2.No

If yes, your working place is:

□1. Your own village	□1. yes	□0. no	Q29-1□
□2. In another village but same township	□1. yes	□0. no	Q29-2□
□3 .In another township but same county	□1. yes	□0. no	Q29-3□

□4. Outside county	□1. yes	□0. no	Q29-4□
□5. Outside province	□1. yes	□0. no	Q29-5□
□6. Other, please specify_____	□1. yes	□0. no	Q29-6□

How many months did you work in other places last year? _____ Q29-7□□

Q30. Consumption expenditures:

□1. For food previous month (yuan)_____ Q30-1□□□□□

□2. Non food previous month (yuan)_____ Q30-2□□□□□

□3. Previous year for education (yuan)_____ Q30-3□□□□□□

□ 4. Previous year for health (yuan)_____ Q30-4□□□□□□

Nomadic households

1. Briefly describe the route that you may travel over the period of 12 months and the areas where you establish camps?

Y1□□-□□-□□-□□-□□-□□-□□-□□-□□-□□-□□

2. What sources of income and food do you draw on in each area?

Y2□□-□□-□□-□□-□□

3. What are the main items you trade along the route?

Y3□□-□□-□□-□□-□□

4. Have you altered your traveling route in the past 5, and 10 years because of environmental, economic or social factors. If yes, briefly describe these.

□1. Yes □2. No Y4-1□

Why ?_____Y4-2□□-□□-□□-□□-□□

Thank you very much, you have been most helpful!

Questionnaire code No. □-□□-□□-□□-□□-□□-□-□-□

Statistics Law of the People's Republic of China

Article 3 State organs, public organizations, enterprises, institutions, and self-employed industrialists and businessmen that are under statistical investigation shall, in accordance with the provisions of this Law and State regulations, provide truthful statistical data. They may not make false entries or conceal statistical data, and they may not refuse to submit statistical reports or report statistical data belatedly. Falsification of or tampering with statistical data shall be prohibited.

Questionnaire Code: 007

Executing Agency: MOFTEC

Designed by: National Bureau of Statistics

Approved Code: NBS[2002] No.15

West to East Pipeline Project Questionnaire
Urban Households Social and Economic Survey

Date:____/_____ □□-□□

Interviewed by:_____ □-□-□□□

Place:_____city/county_____town/township/urban sub-district office _____neighborhood committee

Post code:_____ □□□□□□

Introduction to the Session:

The session should begin with a brief prepared description of why we are asking for the cooperation and inputs from the respondent on three related topics:

- Information about the household
- Information about the household's living standards, employment, income, consumption and social and economic prospects
- Opinions about the prospective impact of the gas pipeline during and after construction

Name of interviewee: _____ Tel:□□□□-□□□□□□□□

Sex: □M □F **sex**□

Ⅰ. PIPELINE

Q1. How much do you know about the West to East Pipeline project?（Tick One） Q1□

□1. Nothing at all □2. A little □3. Some □ 4. A lot

Q2. How did you find out about the Pipeline project?（Tick as appropriate）

□1. Media（newspaper, TV, Broadcast） Q2-1□ □2. Interviewer Q2-2□

□3. Village head/ local authorities Q2-3□ □4. Neighbors or friends Q2-4□

□5. Pipeline exploration team Q2-4□ □6. Other, please specify_____Q2-5○

Q3. How important will the construction of the pipeline be to your household?

（Tick One） Q3□

□1. Unaware □2. Not important □3. Little importance
□4. Medium importance □5. Very important □6. Most important

Q4. If you have to be relocated, what is your preference regarding housing relocation?

(Tick One) Q4□

□1. Unaware □2. Be given a discounted resettlement house
□3. Opt to get cash to buy new houses on your own □4. Be given a site to construct new house
□5. Don't mind □6. Other, please specify__ Q4-1○○-○○

Q5. Will there be positive impacts of the pipeline? Rank in order of importance.

□1. Unaware Q5-1□ □2. Increase employment Q5-2□
□3. Increase annual income Q5-3□ □4. Improve living condition by resettlement Q5-4□
□5. Access to gas for fuel Q8-5□ □6. Improved transport and infrastructure Q5-6□
□7. Compensation for land used Q5-7□ □8 Improved environment Q5-8□
□9. Other _____ Q5-9□-○

Q6. Will there be negative impacts of the pipeline? Rank in order of importance.

□1.unaware Q6-1□ □2.Transport and Infrastructure Q6-2□
□3. Affect social environment Q6-3□ □4. Houses damaged Q6-4□
□5. Gas will increase expenditiures Q6-5□ □6. Environmental pollution Q6-6□
□7. Safety Q6-7□ □8. Others, please specify___ Q6-8□-○

Q7. Any Other Pipeline Impacts?

_____

_____ Q7○○-○○-○○-○○

II. Household Description

Q8. Do you mind telling me your age：_____ (in years) Q8□□□

Q9.What is your household's registration status：(Tick One) Q9□

□1. rural registered permanent residence □2. urban registered permanent residence

Q10.What language do you speak in your home? (Tick One) Q10□

□1. mandarin □2. dialect □3. both

Q11. What ethic group do you identify with? Q11□□

Q12. Number of family members in the household ? Q12□□

Q13 Educational attainment of householder? (years of education) Q13□□

Q14 What is the educational attainment of the housewife? (years of education) Q14□□

Q15. Number of household members working? Q15□□

III. Living Standards, Employment, Income, Expenditures and Prospects

Q16. Your apartment is a：(Tick One) Q16□

□1. Dormitory_____**m^2 (construct area) shared with** _____**people**

Q16-1□□□-□□

□2. Enterprises owned house ___**m^2 (construct area)** Q16-2□□□

□3. Commercial housing_**m^2 (construct area)** Q16-3□□□

□4. Rented rooms_____**m² (construct area)** Q16-4□□□

□5. Ancestral estate_____**m² (construct area)** Q16-5□□□

□6. Self-built _____**m² (construct area)** Q16-6□□□

□7. Transition house _____**m² (construct area)** Q16-7□□□

Q17. Does your household take water from：（Tick as appropriate）

□1. Private piped water Q17-1□

□2. Public use piped water Q17-2□

□3. Private well Q17-3□

□4. Public well Q17-4□

□5. Other, please specify_____Q17-5○

Q18. What type of toilets do you use at home? (Tick One) Q18□

□1. Water closet □2. Pit latrine □3. Open defecation

□4. Pail system □5. No, use comfort station □6. Other, please specify_____

Q18-1○

Q19.Where do you usually go for treatment when sick? （Tick as appropriate）

□1. Clinic in village Q19-1□ □2. Clinic in town Q19-2□

□3. General hospital Q19-3□ □4. The chemist Q19-4□

□5. A traditional healer Q19-5□ □6. No treatment Q19-6□

□7. Other, please specify_____Q19-7○

Q20. Do you believe that there are enough health facilities in local government area?

(Tick One) Q20□

□1. Yes □0. No

Q21. What are your feelings about the medical facilities in this area? Please tick yes or no as appropriate.

21-1. To expensive □1. yes □0. no Q21-1□

21-2. The distance to the hospital is too far □1. yes □0. no Q21-2□

21-3. The waiting time is too long □1. yes □0. noQ21-3□

21-4. They are well staffed □1. yes □0. noQ21-4□

21-5. They treat patients well □1. yes □0. noQ21-5□

21-6. They have enough drugs □1. yes □0. noQ21-6□

Q22. What fuel do your household use:

□ 1. Coal gas □1. yes □0. no Q22-1□

□ 2. Natural gas □1. yes □0. no Q22-2□

□ 3. Liquefied petroleum gas □1. yes □0. no Q22-3□

□ 4. Electric cooker □1. yes □0. no Q22-4□

□ 5. Coal or honeycomb-shaped briquette □1. yes □0. no Q22-5□

☐ 6. Firewood	☐1. yes	☐0. no	Q22-6☐
☐ 7. Straw	☐1. yes	☐0. no	Q22-7☐
☐ 8 Other, please specify_____	☐1. yes	☐0. no	Q22-8○

Q23. Which of the following does your household have?（yes or no）

☐ 1. Mobile phone	☐1. yes	☐0. No	Q23-1☐
☐ 2. Black and white TV	☐ 1. yes	☐0. no	Q23-2☐
☐ 3. Color TV	☐1. yes	☐0. no	Q23-3☐
☐ 4. Refrigerator	☐1. yes	☐0. no	Q23-4☐
☐ 5. Telephone	☐1. yes	☐0. no	Q23-5☐
☐ 6. Air conditioning	☐1. yes	☐0. no	Q23-6☐
☐ 7. Washing machine	☐1. yes	☐0. no	Q23-7☐
☐ 8. Motor cycle	☐1. yes	☐0. no	Q23-8☐
☐ 9. Car or van	☐1. yes	☐0. no	Q23-9☐
☐ 10. AV equipment	☐1. yes	☐0. no	Q23-10☐
☐ 11. Personal computer	☐1. yes	☐0. no	Q23-11☐
☐ 12. Truck	☐1. yes	☐0. no	Q23-12☐
☐ 13. Camera	☐1. yes	☐0. no	Q23-13☐
☐ 14 Other durables, please specify_____	☐1. yes	☐0. no	Q23-14☐

Q24. How long have you lived in this city?(Tick One) Q24-1☐

☐1. Less than one year ☐2. 1-4 year ☐3. 5-10 years

☐4. 11-20 years ☐5. 21 years or more

Q25. In your opinion, compared with before, would you say this community is a

(Tick One) Q25☐

☐1. A better place to live today ☐2. About the same ☐3. A worse place to live today

Q26. What are the three most important priorities to improve conditions in your community: Q26☐☐☐

☐1. Paving roads or infrastructure/ public utilities	Q26-1☐
☐2.Improved medical facilities and prevention programs	Q26-2☐
☐3. Improved access to loans (e.g.: to start small businesses)	Q26-3☐
☐4. Improve d schools (e.g. number of grades, computers, books, rebuild schoolhouse)	Q26-4☐
☐5. Improve recreational facilities	Q26-5☐
☐6. More training opportunities (e.g. development small enterprise)	Q26-6☐
☐7. Cultural preservation	Q26-7☐
☐8. Environmental preservation	Q26-8☐
☐9. More employment opportunities	Q26-9☐
☐10. Other, please specify_____	Q26-10○

Q27. Your estimated family annual income is: (Tick One) Q27☐

☐1. ≤3000 ☐2. 3001-5000 ☐**3.** 5001-10000

□4. 10001-20000 □5. 20001-50000 □6. >50000

Q28. Consumption expenditures:

□1. For food previous month (yuan) Q28-1□□□□

□2. Non food previous month (yuan Q28-2□□□□

□3. Previous year for education (yuan) Q28-3□□□□□□

□4. Previous year for health Q28-4□□□□□□

Thank you very much, you have been most helpful!!!

Appendix 2: Criteria of Sampling Scheme for Social Impact Assessment

General Principles: Determining the sample distribution according to the population of the affected provinces, the economic development standard, pipeline lengths, and the objectives of the project.

THE FIRST MODULE:

Determining the total sample size: For the rural and urban household interviews, we categorized the total counties into 4 levels according to the local economic development standard (per capita GDP). The confidence interval for each level is 95%. There should be 1024 samples in each category. Within each category, we distributed the sample according to the population weight of each county.

Problems: For those populated counties, the distributed sample size would be too large. This kind of distribution is two-dimensional, but the pipeline is one-dimensional; it could not reflect the real situation. The sample distribution according to Module 1 is shown in Table 1 and Table 2. Table 1 specifies the provinces in each economic level; Table 2 illustrates sample distribution for each province.

Table 1

Province Code	Province	City/County	Economic Level	Rural Household Samples	Urban Household Samples
1	Xinjiang	Kuerle City	1	17	137
1	Xinjiang	Shanshan County	1	38	30
1	Xinjiang	Hami City	1	26	130
2	Gansu	Yumen City	1	20	60
2	Gansu	Jiayuguan County	1	36	11
4	Shaanxi	Jingbian County	1	37	16
5	Shanxi	Yangcheng County	1	93	23
5	Shanxi	Zhezhou County	1	124	26
6	Henan	Qinyang County	1	95	44
6	Henan	Boai County	1	93	33
6	Henan	Wen County	1	93	25
6	Henan	Yingyang City	1	152	48
6	Henan	Zhongyuan District	1	0	280
6	Henan	Xinzhou City	1	137	47
7	Anhui	Chuzhou City	1	65	113
Total				**1024**	**1024**
1	Xinjiang	Bohu County	2	9	20
1	Xinjiang	Heshuo County	2	5	38
1	Xinjiang	Tulufan County	2	43	74
2	Gansu	Anxi County	2	14	32
2	Gansu	Jiuquan City	2	59	101
2	Gansu	Gaotai County	2	36	18
2	Gansu	Linze County	2	32	22
2	Gansu	Zhangye Ctiy	2	92	114
2	Gansu	Shandan County	2	39	44
5	Shanxi	Pu County	2	20	21

Province Code	Province	City/County	Economic Level	Rural Household Samples	Urban Household Samples
5	Shanxi	Yaodu District	2	114	250
6	Henan	Wuzhi County	2	149	70
6	Henan	Yanling County	2	151	44
7	Anhui	Fengyang County	2	158	92
7	Anhui	Laian County	2	103	85
Total				**1024**	**1024**
1	Xinjiang	Luntai County	3	9	17
1	Xinjiang	Tuokexun County	3	12	16
2	Gansu	Yongchang County	3	27	47
2	Gansu	Wuwei City	3	116	140
3	Ningxia	Zhongwei County	3	38	49
3	Ningxia	Zhongning County	3	27	33
4	Shaanxi	Yanchuan County	3	35	26
5	Shanxi	Qinshui County	3	27	17
6	Henan	Weishi County	3	107	76
6	Henan	Fugo County	3	91	57
6	Henan	Xihua County	3	108	72
7	Anhui	Mengcheng County	3	151	292
7	Anhui	Huaiyuan County	3	162	99
7	Anhui	Dingyuan County	3	113	85
Total				**1024**	**1024**
2	Gansu	Guliang County	4	56	29
2	Gansu	Jingtai County	4	30	59
3	Ningxia	Tongxin County	4	50	53
3	Ningxia	Yanchi County	4	19	40
4	Shaanxi	Zichang County	4	39	63
4	Shaanxi	Dingbian County	4	29	59
5	Shanxi	Yonghe County	4	8	13
5	Shanxi	Daning County	4	7	25
5	Shanxi	Xi County	4	12	25
5	Shanxi	Fushan County	4	16	26
6	Henan	Huaiyang County	4	181	163
6	Henan	Dancheng County	4	172	172
7	Anhui	Taihe County	4	210	169
7	Anhui	Lixin County	4	194	129
Total				**1024**	**1024**

Table 2

Province Code	Province	City/County	Economic Level	Rural Household Samples	Urban Household Samples
1	Xinjiang	Luntai County	3	9	17
		Kuerle City	1	17	137
		Bohu County	2	9	20
		Heshuo County	2	5	38
		Tuokexun County	3	12	16
		Tulufan County	2	43	74
		Shanshan County	1	38	30
		Hami City	1	26	130
	Total	**8**		**158**	**461**
2	Gansu	Anxi County	2	14	32
		Yumen City	1	20	60
		Jiayuguan County	1	36	11
		Jiuquan City	2	59	101
		Gaotai County	2	36	18
		Linze County	2	32	22
		Zhangye Ctiy	2	92	114
		Shandan County	2	39	44
		Yongchang County	3	27	47
		Wuwei City	3	116	140
		Guliang County	4	56	29
		Jingtai County	4	30	59
	Total	**12**		**558**	**677**
3	Ningxia	Zhongwei County	3	38	49
		Zhongning County	3	27	33
		Tongxin County	4	50	53
		Yanchi County	4	19	40
	Total	**4**		**134**	**174**
4	Shaanxi	Zichang County	4	39	63
		Yanchuan County	3	35	26
		Dingbian County	4	29	59
		Jingbian County	1	37	16
	Total	**4**		**140**	**164**
5	Shanxi	Yonghe County	4	8	13
		Daning County	4	7	25
		Xi County	4	12	25
		Pu County	2	20	21

		Yaodu District	2	114	250
		Fushan County	4	16	26
		Qinshui County	3	27	17
		Yangcheng County	1	93	23
		Zhezhou County	1	124	26
	Total	**9**		**423**	**426**
6	Henan	Qinyang County	1	95	44
		Boai County	1	93	33
		Wuzhi County	2	149	70
		Wen County	1	93	25
		Yingyang City	1	152	48
		Zhongyuan District	1	0	280
		Xinzhou City	1	137	47
		Weishi County	3	107	76
		Yanling County	2	151	44
		Fugo County	3	91	57
		Xihua County	3	108	72
		Huaiyang County	4	181	163
		Dancheng County	4	172	172
	Total	**13**		**1528**	**1131**
7	Anhui	Taihe County	4	210	169
		Lixin County	4	194	129
		Mengcheng County	3	151	292
		Huaiyuan County	3	162	99
		Fengyang County	2	158	92
		Dingyuan County	3	113	85
		Chuzhou City	1	65	113
		Laian County	2	103	85
	Total	**8**		**1156**	**1064**
	Sum Total			**4096**	**4096**

THE SECOND MODULE:

Attempting to distribute the sample according to the population density along the pipeline.

Problems: The western area, where the pipeline dominatingly passes through, is scarcely populated. Therefore, it would worsen the inequitable situation. The sample distribution is shown in Table 3 and Table 4 below.

Table 3

Province	City/County	Economic Level	Rural Household Samples	Urban Household Samples
Xinjiang	Kuerle City	1	66	106
Xinjiang	Shanshan County	1	144	141
Xinjiang	Hami City	1	182	217
Gansu	Yumen City	1	86	100
Gansu	Jiayuguan County	1	36	27
Shaanxi	Jingbian County	1	63	57
Shanxi	Yangcheng County	1	60	36
Shanxi	Zhezhou County	1	65	33
Henan	Qinyang County	1	40	23
Henan	Boai County	1	45	25
Henan	Wen County	1	38	15
Henan	Yingyang City	1	67	33
Henan	Zhongyuan District	1	14	108
Henan	Xinzhou City	1	69	39
Anhui	Chuzhou City	1	49	65
Total		**15**	**1,024**	**1,024**
Xinjiang	Bohu County	2	77	80
Xinjiang	Heshuo County	2	61	72
Xinjiang	Tulufan County	2	45	55
Gansu	Anxi County	2	171	177
Gansu	Jiuquan City	2	86	100
Gansu	Gaotai County	2	53	47
Gansu	Linze County	2	31	28
Gansu	Zhangye Ctiy	2	73	80
Gansu	Shandan County	2	79	80
Shanxi	Pu County	2	43	44
Shanxi	Yaodu District	2	76	122
Henan	Wuzhi County	2	55	29
Henan	Yanling County	2	56	21
Anhui	Fengyang County	2	64	42
Anhui	Laian County	2	54	48
Total		**30**	**1,024**	**1,024**
Xinjiang	Luntai County	3	80	83
Xinjiang	Tuokexun County	3	54	55
Gansu	Yongchang County	3	67	74
Gansu	Wuwei City	3	102	111
Ningxia	Zhongwei County	3	107	111

Province	City/County	Economic Level	Rural Household Samples	Urban Household Samples
Ningxia	Zhongning County	3	40	42
Shaanxi	Yanchuan County	3	100	97
Shanxi	Qinshui County	3	27	23
Henan	Weishi County	3	65	54
Henan	Fugo County	3	60	49
Henan	Xihua County	3	53	41
Anhui	Mengcheng County	3	81	128
Anhui	Huaiyuan County	3	94	73
Anhui	Dingyuan County	3	93	83
Total		**42**	**1024**	**1024**
Gansu	Guliang County	4	94	85
Gansu	Jingtai County	4	56	65
Ningxia	Tongxin County	4	62	63
Ningxia	Yanchi County	4	74	81
Shaanxi	Zichang County	4	108	116
Shaanxi	Dingbian County	4	68	78
Shanxi	Yonghe County	4	52	54
Shanxi	Daning County	4	15	21
Shanxi	Xi County	4	11	15
Shanxi	Fushan County	4	56	59
Henan	Huaiyang County	4	99	93
Henan	Dancheng County	4	89	89
Anhui	Taihe County	4	129	115
Anhui	Lixin County	4	111	89
Total		**56**	**1024**	**1024**

Table 4

Province Code	Province	City/County	EconomicLevel	Rural Household Samples	Rural Household Samples
1	Xinjiang	Luntai County	3	80	83
		Kuerle City	1	66	106
		Bohu County	2	77	80
		Heshuo County	2	61	72
		Tuokexun County	3	54	55
		Tulufan County	2	45	55
		Shanshan County	1	144	141
		Hami City	1	182	217
	Total	**8**		**708**	**810**

2	Gansu	Anxi County	2	171	177
		Yumen City	1	86	100
		Jiayuguan County	1	36	27
		Jiuquan City	2	86	100
		Gaotai County	2	53	47
		Linze County	2	31	28
		Zhangye Ctiy	2	73	80
		Shandan County	2	79	80
		Yongchang County	3	67	74
		Wuwei City	3	102	111
		Guliang County	4	94	85
		Jingtai County	4	56	65
	Total	**12**		**933**	**973**
3	Ningxia	Zhongwei County	3	107	111
		Zhongning County	3	40	42
		Tongxin County	4	62	63
		Yanchi County	4	74	81
	Total	**4**		**284**	**297**
4	Shaanxi	Zichang County	4	108	116
		Yanchuan County	3	100	97
		Dingbian County	4	68	78
		Jingbian County	1	63	57
	Total	**4**		**340**	**348**
5	Shanxi	Yonghe County	4	52	54
		Daning County	4	15	21
		Xi County	4	11	15
		Pu County	2	43	44
		Yaodu District	2	76	122
		Fushan County	4	56	59
		Qinshui County	3	27	23
		Yangcheng County	1	60	36
		Zhezhou County	1	65	33
	Total	**9**		**406**	**407**
6	Henan	Qinyang County	1	40	23
		Boai County	1	45	25
		Wuzhi County	2	55	29
		Wen County	1	38	15

		Yingyang City	1	67	33
		Zhongyuan District	1	14	108
		Xinzhou City	1	69	39
		Weishi County	3	65	54
		Yanling County	2	56	21
		Fugo County	3	60	49
		Xihua County	3	53	41
		Huaiyang County	4	99	93
		Dancheng County	4	89	89
	Total	**13**		**750**	**618**
7	Anhui	Taihe County	4	129	115
		Lixin County	4	111	89
		Mengcheng County	3	81	128
		Huaiyuan County	3	94	73
		Fengyang County	2	64	42
		Dingyuan County	3	93	83
		Chuzhou City	1	49	65
		Laian County	2	54	48
	Total	**8**		**674**	**643**
	Sum Total			**4,096**	**4,096**

THE THIRD MODULE:

Combining the experiences gathered from the above two stages, we made the average of the population weight and the reciprocal of the population density as the weight. The rural household sample size became more rational.

Problem: Since the ratio of the rural population to the urban population is in between 3 and 4 while the sample sizes are equal, the rural household sample size and the urban household sample size would be severely imbalanced. The sample distribution is illustrated in Table 5.

Table 5

Province	Household			Interview			
	Total	**Rural**	**Urban**	**Total**	**County**	**Township**	**Village**
Xingjiang(1)	**254**	117	137	**32**	3	16	13
Gansu	**1778**	877	901	**226**	12	136	78
Ningxia	**1081**	446	635	**137**	4	12	121
Shaanxi	**1124**	562	562	**143**	4	25	114
Shanxi	**1201**	640	561	**152**	9	30	113
Henan	**1439**	779	660	**183**	13	149	21
Anhui	**1315**	675	640	**167**	8	51	108
Total	**8192**	4096	4096	**1040**	53	419	568

THE FOURTH MODULE:

Finalizing the total sample size for urban household and stakeholder interview. After much research and consideration, we decided to reduce their sample size to the 40% of the original size. We re-distributed the sample according to the above two types of weight. Result showed that this method was more improved and rational.

Problems: The sample size for urban household was still too big, but it couldn't be reduced any more. The sample distribution following Module 5 is shown in Table 6.

Table 6

Province	Household Interview Samples						Interview	Community
	Total	Rural households *1.05	Rural households *1.05	Urban Households	Urban Households *0.4	Urban Households 1.05*0.4		
Xingjiang(1)	**267**	68	68	199	199	199	**32**	18
Gansu	**1154**	765	803	835	334	351	**148**	**148**
Ningxia	**806**	556	583	529	212	222	**72**	**16**
Shaanxi	**1056**	729	765	693	277	291	**83**	**29**
Shanxi	**649**	435	457	457	183	192	**94**	**39**
Henan	**1161**	806	846	750	300	315	**162**	**162**
Anhui	**1040**	738	774	633	253	266	**137**	**59**
Total	**6133**	4096	4298	4096	1758	1836	**728**	**471**

THE FIFTH MODULE:

Based on the theoretical distribution, we made some trivial changes, making sure that the total sample size of each province would not differ by 30%. As a result, all the implementing institutions would complete the project at around the same time and the workload for each implementing institution would not differ too much. Therefore, the smooth progress of the project was guaranteed. The sample distribution according to Module 5 is shown in Table 7 and Table 8.

Table 7

Province	Household						Interview	Community
	Total	Rural households *1.05	Rural households *1.05	Urban Households	Urban Households *0.4	Urban Households 1.05*0.4		
Xingjiang (1)	**267**	68	68	199	199	199	**32**	**18**
Gansu	**1104**	765	803	835	286	301	**148**	**148**
Ningxia	**856**	556	583	529	259	272	**55**	**16**
Shaanxi	**1106**	729	765	693	325	341	**68**	**29**
Shanxi	**649**	435	457	457	183	192	**94**	**39**
Henan	**1111**	806	846	750	252	265	**162**	**162**
Anhui	**1040**	738	774	633	253	266	**137**	**59**
Total	**6133**	4096	4298	4096	1758	1836	**696**	**471**

Table 8

	County/City Name	Household			Interview
		Rural households *1.05	Urban Households *1.05	Total	
Xinjiang	Luntai County	42	121	163	19
	Kuerle City	26	48	104	13
Total		**68**	**199**	**267**	**32**
Gansu	Anxi County	27	29	56	14
	Yumen City	40	22	62	11
	Jiayuguan County	10	7	17	4
	Jiuquan City	97	44	141	21
	Gaotai County	55	24	79	12
	Linze County	51	18	69	9
	Zhangye Ctiy	148	51	199	24
	Shandan County	63	22	85	11
	Yongchang County	101	22	123	11
	Wuwei City	124	31	155	15
	Guliang County	72	22	94	11
	Jingtai County	15	9	24	5
Total		**803**	**301**	**1104**	**148**
Ningxia	Zhongwei County	235	91	325	15
	Zhongning County	111	68	179	14
	Tongxin County	149	45	195	13
	Yanchi County	89	68	157	13
Total		**584**	**272**	**856**	**55**
Shanxi	Zichang County	188	68	256	16
	Yanchuan County	191	95	287	18
	Dingbian County	172	82	254	17
	Jingbian County	214	95	310	17
Total		**765**	**341**	**1107**	**68**
Shanxi	Yonghe County	20	19	39	10
	Daning County	5	13	17	9
	Xi County	10	6	17	8
	Pu County	42	19	62	10
	Yaodu District	101	32	133	12
	Fushan County	41	19	60	10
	Qinshui County	40	13	53	9
	Yangcheng County	110	38	148	13
	Zhezhou County	87	32	119	12

Total		**457**	**192**	**648**	**94**
Henan	Qinyang County	41	21	62	13
	Boai County	50	23	73	14
	Wuzhi County	13	4	16	3
	Wen County	8	4	11	3
	Yingyang City	63	27	90	16
	Zhongyuan District	6	2	8	2
	Xinzhou City	62	23	85	14
	Weishi County	35	11	46	7
	Yanling County	73	21	95	13
	Fugo County	84	27	111	16
	Xihua County	106	34	140	20
	Huaiyang County	159	36	195	21
	Dancheng County	146	34	180	20
Total		**846**	**265**	**1111**	**162**
Anhui	Taihe County	169	42	211	18
	Lixin County	158	36	195	17
	Mengcheng County	90	21	111	15
	Huaiyuan County	106	26	132	16
	Fengyang County	38	10	49	13
	Dingyuan County	142	83	225	27
	Chuzhou City	47	36	83	18
	Laian County	24	10	34	13
Total		**775**	**266**	**1,041**	**137**
Sum Total		**4,298**	**1,836**	**6,134**	**696**

The sampling methodology for the West-East Pipeline Project Social Impact Assessment is a very complicated issue. We made careful comparison and contrast among all the above modules and selected Module 5 in conjunction with the research characteristics of the SIA.

Appendix 3: Pipeline Information Sheets - English Translations

Basic information about the pipeline:

About the Project:

- The project is a major project under China's 10th five-year plan to increase the use of natural gas in China as part of the government's commitment to developing the energy resources it needs to sustain economic growth. It is also part of a plan to bring more wealth to the Western Provinces and reduce the imbalance with Eastern Provinces
- The pipeline will bring natural gas from the Tarim Basin in Xinjiang to the densely populated, industrially developed eastern region and Shanghai. With a length of 4000 km, it will pass through eight provinces / autonomous regions, namely Xinjiang, Gansu, Ningxia, Shaanxi, Shanxi, Henan, Anhui and Jiangsu.
- Construction of the pipeline is planned to start in the first half of this year. Gas will start to flow from Jingbian to Shanghai in early 2004. The pipeline is planned to be completed and fully operational in 2005.

The Pipeline Design & Safety:

- The pipe has a diameter of about 1m and is covered with anti-erosion coatings.
- The pipeline will be designed according to international standards to ensure that it can be operated safely.
- The gas in the pipeline is pressurized and any leak will cause a drop in pressure. Block valves will be installed at regular intervals to guarantee safety. If the pressure in the pipeline drops, these valves will close automatically to stop the gas flow, and maintenance staff will immediately inspect the pipeline and make any necessary repairs.
- There will be markers along the pipeline route.
- Patrols will periodically check the pipeline and promptly seek out any potential risks.

Construction:

- The construction will be divided into sections;
- The pipe will be buried under the ground with its top 1 metre deep from the surface. The trench will be refilled with soil or sand cover.
- The right of way during construction will normally be 30m wide but in mountain areas could be as narrow as about 15 metres. In difficult construction areas such as river crossings the right of way may be expanded.
- The pipe will be welded together on site and then be lowered into a trench. Normally, the open part of the trench will be less than 8 km.

During construction

Construction completed

Land use issues:

- After construction is completed, the surface of the right of way will be restored to its original condition, except for some parts where access a few metres wide will remain for maintenance purposes. Most of the lands will be returned to cultivation or herding, as it was before the pipeline was laid.
- The pipeline company will have access to the right of way to maintain, inspect, construct and operate the pipeline.
- Trees, shrubs and permanent buildings are not permitted within a certain distance above or either side of the pipeline.
- Issues related to land use for the pipeline will be dealt with according to the 'Land Administration Law' and the 'Rules for the Protection of Oil and Gas Pipelines' of the PRC;
- The design and construction of the pipeline will comply with Chinese legislation for the protection of Cultural Heritage sites.